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<b>(21) International Application Number:</b> PCT/US99/23697 <b>(22) International Filing Date:</b> 12 October 1999 (12.10.99)  <b>(30) Priority Data:</b> 09/172,593 14 October 1998 (14.10.98) US 09/410,242 28 September 1999 (28.09.99) US  <b>(71) Applicant:</b> LASER SUBSTRATES, INC. [US/US]; 6251 Park of Commerce Boulevard, Boca Raton, FL 33431 (US).  <b>(72) Inventor:</b> FABEL, Warren; 961 Iris Drive, Delray Beach, FL 33483 (US).  <b>(74) Agents:</b> WHITLOCK, Ted, W. et al.; Laser Substrates, Inc., 6251 Park of Commerce Boulevard, Boca Raton, FL 33431 (US).		<b>(81) Designated States:</b> AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
<b>(54) Title:</b> METER TAPE AND ADDRESS LABELS FOR NON-IMPACT PRINTER  <b>(57) Abstract</b>  A template sheet forming postal meter labels or combination postal meter/address labels are described upon which postal indicia can be printed, by a non-impact printer, less than one-quarter inch from the edge of the label. The sheet includes a plurality of removably affixed meter tape or meter tape/address labels positioned on one face of a laminated individual or continuous feed sheet. The combination meter tape/address labels are self-aligning for conforming to United States Postal Service IBIP specifications.		

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**METER TAPE AND ADDRESS LABELS FOR NON-IMPACT PRINTER****Cross-reference to Related Applications**

This application is a continuation-in-part of Applicant's pending U.S. Patent Application Serial No. 09/172,593 filed October 14, 1998, which was a continuation-in-part of U.S. Provisional Patent Application Serial No. 60/087,595 filed June 1, 1998, now abandoned, and is a continuation-in-part of pending U.S. Patent Application Serial No. 09/102,852 filed June 23, 1998, which is a continuation-in-part of pending U.S. Patent Application Serial No. 09/097,246 filed June 12, 1998, which is a continuation-in-part of pending U.S. Patent Application Serial No. 08/049,946 filed April 20, 1993, now U.S. Patent No. 5,836,622.

**Background of the Invention**

This invention relates generally to postal meter tape and address labels, and more specifically, to meter tape or combination meter tape/address labels which can be printed with information or coding in accordance with United States Postal Service requirements.

Non-impact printers, such as laser or ink-jet printers, are being increasingly used to provide a fast, economical, and convenient method for printing data developed within computer systems and stored in databases. In most organizations, preparing and distributing mail represents a significant effort. In addition, the United States Postal Service (USPS) is automating its postage application procedures. With this automation, the USPS has developed strict specifications under its Information Based Indicia Program (IBIP) for certain indicia provided on an envelope to be mailed. For example, the USPS has set requirements for the size and location of various indicia including, but not limited to, the two-dimensional information based indicia (IBI) code, address format, POSTNET bar code location, and the

facing identification mark (FIM).

A FIM pattern is required on all IBI mail pieces. A FIM clear zone must contain no printed matter other than the FIM pattern. FIM bars must be between  $\frac{1}{2}$ " and  $\frac{3}{4}$ " high and 0.03125 (1/32 of an inch)  $\pm$  0.008" wide. The specifications further require that the FIM area  
5 be  $1\frac{1}{4}$ " wide x  $\frac{5}{8}$ " high. The left side of FIM clear zone must be 3" from the right edge of the envelope and the right edge of the FIM clear zone must be between  $1\frac{7}{8}$ "- $2\frac{1}{8}$ " from the right edge of the envelope, preferably  $1\frac{3}{4}$ ".

The use of non-impact printers, which cannot print less than  $\frac{1}{4}$ " from the edge of a page, can be disadvantageous in view of the requirement that the FIM is no more than  $\frac{1}{8}$ "  
10 from the top of an envelope or other mail piece. Because the printing of indicia no more than  $\frac{1}{8}$ " from the edge of an envelope face is not limited to the FIM, a standard envelope or meter tape label fed through a non-impact printer will not meet the USPS IBIP indicia placement requirements. Therefore, the task of automating the printing of envelopes or other postal forms using a non- impact printer can present a problem in meeting the USPS requirements.  
15 These disadvantages apply to laser or thermal-sensitive or thermal transfer printers. Laser printers typically print a single sheet fed through the printer one sheet at a time, whereas thermal-sensitive or thermal transfer printers typically print labels formed on a continuous-fed roll or fan-fold pack of blank labels.

#### Brief Summary of the Invention

20 It is an object of the subject invention to provide postal meter tape label on which indicia can be printed by a non-impact printer  $\frac{1}{4}$ " or less from the edge of the meter tape label  
50 that the specifications and requirements of the Information Based Indicia Program (IBIP) effected by the United States Postal Service (USPS) can be met. More specifically, it is an

object of the subject invention to provide a laminated sheet comprising a plurality of postal meter tape labels which can be printed to conform to the USPS IBIP specifications.

It is a further object of the invention to provide a combination postal meter tape and address label formed as a unitary article. The combination meter tape/address label can be provided as a laminated sheet comprising at least two layers, and said sheet can include a plurality of labels. Alternatively, the combination meter tape/address label can be provided as a continuous-feed roll or fan-fold pack of a plurality of label blanks comprising an upper ply of label material releasably adhered to a lower ply of backing material. Postal indicia can also be printed by a non-impact printer at a position of  $\frac{1}{4}$ " or less from an edge of the subject combination meter tape/address label.

In one embodiment concerning the meter tape label sheet, two sets of postal meter tape labels can be formed on a single sheet, one set on each of a first and second half of the sheet relative to the central longitudinal axis of said sheet. Preferably, the postal meter tape label sheet can be fed through an auxiliary envelope feeder tray of a non-impact printer. In use, printing occurs on a label situated or configured on the first, or left, half of the central longitudinal axis of said label sheet. The meter tape labels are positioned on the sheet in an offset configuration such that an at least  $\frac{1}{8}$ " margin, preferably an approximately  $\frac{1}{4}$ " margin, is provided between the leading edge, relative to the feed direction, of this left half of the sheet and the leading edge of the meter tape label. A margin of at least  $\frac{1}{8}$ ", and preferably an least approximately  $\frac{1}{4}$ " margin, is also provided on the left edge of the sheet. In the preferred embodiment, the margins form an inverted L-shaped border along a leading and left edge of the sheet, respectively corresponding to the leading and top edges of each label. In an embodiment comprising a plurality of labels formed on one half of the sheet, the left

margins bordering the top edge of each label on that half of the sheet can be coextensive. Thus, the L-shaped margins bordering the labels on one half of a sheet together form an F-shaped margin. The trailing edge of the left side of the sheet and the meter tape label can be coextensive, i.e., no margin or border is present.

5           When the sheet is reversed or rotated 180 degrees, the second, or right, half of the meter tape label sheet then becomes the left half of the meter tape label sheet. Accordingly, the meter tape labels are configured on this second half of the meter tape label sheet in the same fashion as the first half of the meter tape label sheet. Specifically, an approximately ¼" margin is provided on the leading and left edges, relative to the feed direction, of the meter  
10   tape label sheet. This configuration provides for printing postal indicia within about 1/8" or less of an edge of a meter tape label.

          In the combination meter tape/address label embodiment for use with a laser printer, postage indicia, a FIM mark, and address information can also be printed on a single face of the sheet, wherein the indicia is automatically positioned and aligned in accordance with  
15   USPS standards. The meter tape/address label includes a tab which wraps around and folds over the right edge of an envelope in a face-up position, thereby providing a means for ensuring proper alignment and position. One advantage of the unitary article is that the POSTNET bar code and the two- dimensional IBI code are printed on a single label and are never separated.

20           The combination meter tape/address label article further comprises a separable border along the top edge of the label to offset printing so that a FIM mark can be printed 1/8" or less from that top edge, and thereby positioned 1/8" or less from the top edge of the envelope. The combination meter tape/address label can also include an alignment mark or guide to

ensure proper placement and alignment of the label on the envelope.

Preferably, the meter tape/address label is provided on a sheet which is sized such that the sheet can be fed into a non-impact printer via an envelope feeder tray. More preferably, the sheet can include a plurality of meter tape/address labels, either having a plurality of meter tape/address labels on a single sheet for printing by laser printer, or as a plurality of meter tape/address labels disposed as a continuous-feed roll or fan-fold pack of labels for use with a thermal-sensitive or thermal transfer printer.

In any of these embodiments, the label sheets of the subject invention comprise at least two layers which are laminated together: a first, top ply and a second bottom ply which forms a backing or carrier for the overlying top layer. The label sheets can be die-cut in the top layer in particular configurations to achieve the advantages as described. The first top ply

preferably can include an adhesive material disposed on its back face. Preferably, pressure-sensitive adhesive material, which is well-known and understood in the art for use with labels, is disposed on the back face of the top layer such that a perimeter margin of about 1/16" to about 1/8" of adhesive-free area is provided to allow for oozing or "bleeding" of the adhesive when exposed to heat from a laser printer.

The carrier ply can be deposited with adhesive-release material, e.g., silicone release material, on its front face which opposes and contacts the top layer. The release material can be deposited in a particular predetermined pattern ("patterned release") so as to come into contact with or engage only the portion of the top layer forming the meter tape or address label so the label can be removed from the backing layer. Thus, certain margins or border areas of the top layer can be made non-releasable and remain substantially permanently affixed to the carrier layer. Alternatively, the adhesive-release material can fully coat the

front face of the carrier layer.

Advantageously, the subject invention provides a rapid and convenient article and method for printing postal indicia on a meter tape label or combination meter tape/address label in accordance with USPS IBIP specifications and which can be perfectly aligned on an envelope. In use, a sheet comprising the label or labels is printed on a non-impact printer, the backing layer and any non-used border area is removed from the top layer to expose adhesive disposed on the back face of the top layer, and the label is adhered to the mail piece, e.g., an envelope, in a particular alignment such that certain indicia, e.g., the FIM mark is placed in proper position in accordance with the requirements of the USPS.

#### Brief Description of the Drawings

Fig. 1 shows a plan view of a top face of one embodiment of the article of manufacture according to the subject invention, illustrating an offset configuration for a plurality of postal meter tape labels.

Fig. 2 shows a plan view of a top, or inside, face of the second, carrier layer of one embodiment of the article according to the subject invention, illustrating a patterned configuration of the adhesive-release material covering an area of said front face of said second layer.

Fig. 3 shows the patterned adhesive release material on the second carrier layer and its relative position to the overlying top layer. The top layer is shown prior to die-cutting of the meter tape labels.

Fig. 4 shows a plan view of a back face of the top layer of the meter tape label sheet, illustrating the area covered by adhesive, leaving an approximately 1/16" adhesive-free area around the perimeter of said top layer.



Fig. 5 shows a meter tape label removably affixed to the carrier layer.

Figs. 6A and 6B show further embodiments of a meter tape label sheet according to the subject invention wherein each sheet has one half serving as a label layer, and the other half as a carrier layer. Fig. 6A shows an embodiment wherein the label tape is configured on the left half of the sheet. Fig. 6B shows an embodiment wherein the label layer is configured on the right half of the sheet.

Fig. 7 shows an elevated view of a front face of a top layer of the combination meter tape/address label sheet embodiment, in particular, a dual label configuration illustrating die-cut and fold lines.

Fig. 8 shows a dual label configuration of a meter tape/address label sheet embodiment as shown in Fig. 7, having information printed thereon.

Fig. 9 shows a front or inner face of the back carrier layer of the embodiment shown in Fig. 7, illustrating release material patternly disposed thereon.

Fig. 10 shows a back face of the back layer of the embodiment shown in Fig. 7, illustrating instructional information preprinted thereon.

Fig. 11 shows a front face of a continuous-feed embodiment of a combination meter tape/address label according to the subject invention. This Figure shows one complete face of a first meter tape/address label and a partial face of a second meter tape/address label which follows the first label on the continuous-feed roll.

Fig. 12 shows the outer face of the backing sheet for the embodiment illustrated in Fig. 11, showing the score lines and perforations formed thereon.

Figs. 13A-13C show a stepwise method for applying the combination meter tape/address label to an envelope to properly position mailing indicia in accordance with

USPS standards. Fig. 13A shows a back face of the subject article; Fig. 13B shows a back face of the subject article aligning the tab portion along the edge of an envelope; Fig. 13C shows the front face of the meter tape/address label as applied to an envelope.

#### Detailed Description of the Preferred Embodiments

5           The subject invention can be understood by reference to the accompanying drawings.

Fig. 1 shows a plan view of a front face of one embodiment of the postal meter tape label sheet 1 according to the subject invention, illustrating die-cut lines a, d, e, f, g, h, j, k, l, m, and n, forming an offset configuration of a plurality of postal meter tape labels 2-5. A first die-cut line a extends from a top edge b of the label sheet 1 along a central longitudinal axis  
10 to a bottom edge c of the label sheet 1, dividing said label sheet into left and right halves.

Further die-cuts can be made in each half of the sheet to form a plurality of labels 2-5. For convenience, the subject invention is described by referring to the left half of the sheet comprising die-cut lines d-h, forming labels 2 and 3 having borders 6, 7, and 8 around three edges of label 2 and two edges of label 3. These borders 6, 7, and 8 advantageously allow a  
15 non-impact printer, e.g., a laser printer, to print indicia flush with an edge of the label. The labels formed on the left side of the sheet are configured such that border 8 forming a bottom margin of label 2 is coincident as a top border for label 3. Border 7 extends along edge e of label 2, across the width of border 8, and along edge h of label 3. The bottom edge of label 3 is coincident with bottom edge c of the label sheet 1. Thus, an "F" shaped border is formed  
20 by the die-cuts on the left side of the label sheet 1.

Die-cuts are made in the right side of label sheet 1 to form labels 4 and 5 in a similar manner and configuration, except that the right side is reversed and inverted in relation to the left side.

Fig. 2 shows a plan view of a top, or inner, face of the second, or carrier, layer 9 of one embodiment of the subject label sheet. The top face of carrier layer 9, which contacts the back face of the front layer when the top and carrier layers are laminated together, is shown having a patterned configuration of adhesive-release material 10 disposed on the top face of said carrier layer. Adhesive-release material 10 can be disposed in a configuration which matches the position of labels 2-5 formed on the first top layer of the label sheet or can be disposed to cover substantially the entire front face of the carrier layer (not shown). In a preferred embodiment, the area of the carrier layer 9 conforming to the F-shaped borders of the top layer is free of adhesive-release material.

Fig. 3 shows the patterned adhesive-release material 10 on the second carrier layer 9 and its relative position to the overlying top layer. Fig. 3 shows the label sheet 1 prior to die-cutting of the meter tape labels.

Fig. 4 shows a plan view of a back face of the top layer of the meter tape label sheet 1, illustrating the area covered by adhesive 40 in a preferred embodiment. Preferably, adhesive 40 is disposed on the back or inner face of the top layer to substantially cover the entire area of the back face, leaving an approximately 1/16" adhesive-free border 41 around the perimeter of said sheet 1. This border allows for oozing or "bleeding" of the adhesive when exposed to heat from a laser printer so that adhesive does not bleed over the edge of the sheet when run through the printer.

Fig. 5 shows meter tape label 3 as being removably affixed to the carrier layer 9. Adhesive 40 is disposed substantially on the entire back surface of label 3 and is removable from adhesive-release material 10 patternly disposed on back layer 9.

Alternatively, as shown in Figs. 6A and 6B, an embodiment of the subject invention

can include a label sheet 60 wherein one half of the sheet, divided along a substantially central longitudinal axis y, is configured as described herein, i.e., the front sheet has adhesive-backed label tape components 62-63 (on the left-hand embodiment) and label tape components 64-65 (in the right-hand embodiment) die-cut from the top layer; the back layer, which can be patternly coated with an adhesive-release material, serves as a carrier. The other half of the sheet is reversed, i.e., the top layer serves as a carrier having adhesive-release material disposed on the inner face as described herein, and the back layer serves as the label tape, having adhesive material disposed on its inner face. For convenience of reference, the sheets are referred to as having a left half and right half when viewed facing the front face of the sheet. This embodiment can advantageously provide a sheet having instructions or directions for use or other indicia printed on both outward facing faces. Thus, the instructions for use are viewable regardless of the face of the sheet which is being printed.

In one configuration of this embodiment (Fig. 6A), the left half of the label sheet comprises label tapes 62, 63 on the top layer, and the left half of the back layer serves as the carrier (not shown). The right half 61 of the label sheet is an opposing configuration wherein the right half of the top layer serves as the carrier and the right half of the back layer serves as the labels (not shown). When viewed from their outer faces, the front and back layers are identical.

In this embodiment, adhesive-release material can be disposed on the right half of the back face of the top layer. Adhesive-release material can be disposed on substantially the entire surface of the back face of the top layer or can be patternly disposed thereon to conform to the label tape configuration. Labels on the right half of the sheet can be die-cut from the carrier layer. Adhesive material can be disposed over substantially the entire surface

of the inner face of the right side of the back layer. Preferably, an adhesive-free border can be provided to preclude oozing or bleeding of hot-melt adhesive from the edges of the sheet, potentially causing damage to the printer. A preferred adhesive-free border is approximately 1/16" in width.

5 As would be readily understood, and as shown in Fig. 6B, the right half of the label sheet can alternatively comprise label tapes 64, 65 on the top layer; the right half of the back layer correspondingly serving as the carrier. The label sheet shown in Fig. 6B comprises a left half, which comprises a carrier layer; and the left half of the back layer comprises label tape components configured in a substantially similar fashion as on the front layer.

10 Because the front and back layers include a die-cut substantially along the central longitudinal axis, it is important that these die cuts are slightly offset from one another, i.e., not superimposed over one another, so that the page maintains its integrity.

A preferred embodiment of the subject combination meter tape/address label sheet 70 is shown in Fig. 7, wherein the preferred embodiment includes a dual label sheet comprising  
15 labels 71 and 72 which are adjoined by a curvilinear juncture line 73 which divides the two labels 71 and 72. As shown, it is preferable to provide the labels in an opposing or reverse juxtaposed position so that both labels can be accommodated on a single sheet without waste of surface area of the sheet.

Die-cut and perforation lines are provided on the top layer to define particular areas of  
20 the label or borders thereof. In particular, perforation line aa divides a label into a section 74 which is positioned on the front face of an envelope, and tab 75 which wraps around or folds over along perforation line aa so that it becomes positioned on the back face of the envelope. Section 74 and tab 75 remain co-extensive along fold line or perforation line aa.

A die-cut line bb (also forming the top edge of the label) can be provided so that label 72 can be separated from a backing layer along border 76. Border 76 also provides a margin of at least 1/8" to offset the edge of the printed label so that it can receive a FIM mark flush with its top edge formed by die-cut line bb. The trailing edge of the label is formed by  
5 curvilinear line 73 which is preferably a combination of alternating perforation and die-cut lines. The perforations are formed in the front sheet so as to retain integrity of the dual label sheet. The inversely positioned label 71 is shown having corresponding perforation a' and die-cut line b' forming corresponding sections 74', 75' and 76'.

Fig. 8 shows the embodiment of the combination meter tape/address label sheet 70 as  
10 shown in Fig. 7, having postal indicia and address information printed on the front face of the top layer. Shown are postage indicia 81, facing identification mark (FIM) 82, two-dimensional IBI code 83, addressee information 84, and POSTNET bar code 85. For security of postage, a security code is provided in both the addressee label (in particular, the delivery point zip code) and the two-dimensional IBI bar code or indicia. These codes must  
15 match to prevent rejection by automatic postal sorters/readers. Thus, keeping the addressee mailing label and mailing indicia sections as part of a unitary article or section within the mailing label, can prevent mismatch of the security codes provided therein.

In addition, USPS specifications require that the positioning of certain indicia, including a FIM and coded information, have a five percent (5%) variation or less (maximum  
20 5% "skewer") so that automated sorters/readers can process the mail piece. Thus, a unitary article which provides an alignment means for proper positioning of the indicia can be advantageous.

Fig. 9 shows the front face of back layer 90 of the subject article, illustrating the

pattern of adhesive-release material 91 disposed on said back layer.

Fig. 10 shows the back face of back layer 90 illustrating instructional information which can be preprinted on that back face.

A second embodiment of the subject meter tape/address label invention useful for continuous-feed printers, e.g., thermal-sensitive or thermal transfer printers, is illustrated in 5 Figures 11 and 12. As in the embodiment described above for use with a laser printer, this second embodiment also comprises a top ply forming the printable labels, and a backing ply used as a carrier for those labels.

Fig. 11 shows the front face of the subject meter tape/address label configured for use 10 on a continuous-feed printer, e.g., a thermal-sensitive or thermal transfer printer.

Thermal-sensitive and thermal transfer printers typically employ an approximately 4¼" wide roll of labels which can be continuously fed through a friction sheet feeding device. For thermal-sensitive printers, the label can be coated with a self-contained image coating, standard in the industry and commercially available, to form images by the thermal-sensitive 15 printer, which uses heated pins to form the images on the label. Thermal transfer printers use heated pins to contact a ribbon which transfers material from the ribbon to the label face to form the images on the label.

In the embodiment shown in Fig. 11, the continuous roll is divided by a perforation 110 to form individual label sheets 111. This perforation 110 is formed through the backing 20 ply (further illustrated in Fig. 12) and between the independent label sheets 111 to provide separable label sheets. Thus, when one label sheet has been printed and its following label sheet has not, the printed sheet can be separated easily from the non-printed sheet along perforation line 110.

Each individual label sheet 111 comprises a combination meter tape/address label 113 which is die cut along die-cut lines 114 from the remainder of the upper ply. This remainder of the upper ply is termed the "matrix" 115. Preferably, the matrix 115 is removed in the final manufacturing process for making the label product so that removal of the labels from the backing sheet is facilitated. The meter tape/address label 113 can receive printed information and postage indicia in the manner as described for labels 71 and 72 in Fig. 7. Meter tape/address label 113 has a similar curvilinear edge 116 as labels 71 and 72, and has a perforation 117 formed in the top ply which divides the label 113 into a label section 118 and tabs 119. Perforation 117 corresponds to the perforations the embodiment shown in Fig. 7 which divides the labels 71 and 72 into section 74 and top 75. The label sheet 111 further comprises a second label 120 also formed by a die-cut 121 in the upper ply. Matrix area 115 can also be preferably removed from around the second label 120 in the final product.

The second label 120 can be useful as an address label or as a tracking label. However, second label 120 advantageously also serves as an additional friction surface for the friction sheet-feeding device typically used in roll-type continuous feed printers.

Fig. 12 shows the outer face of the backing sheet 123 for the embodiment illustrated in Fig. 11, showing the score lines 122 and perforations 110 formed thereon. Score lines 122 are made so that a peel-off strip 124 is formed in the backing sheet 123. Peel off-strip 124 allows that portion of the backing sheet to be removed, thereby exposing adhesive coated on the inner face of tab 119 (Fig. 11), useful for affixing the subject meter tape/address label to an envelope.

Use of the subject combination meter tape/address label is illustrated in Figs. 13A-13C. Fig. 13A shows the back layer of the subject article wherein the back layer 130



corresponding to tab 75 is peeled away from tab 75 to expose adhesive 132 on the inner face of the front sheet of the front layer of the article. Removal of back layer 130 also removes top margin 131 of both top and back layers. Tab 75 is then placed behind an envelope so that the meter tape/address label extends from the edge of the envelope and aligns top edge bb with the top edge of the envelope. The carrier layer can then be removed from the meter tape/address label portion or section folded over the envelope to place the meter tape/address label in proper position and in accordance with USPS requirements. In particular, the FIM 82 is placed less than 1/8" from the top edge of the envelope and preferably flush therewith. (Fig. 13C).

The subject postal meter tape label sheet and combination meter tape/address label have a plurality of advantages, including the capability to have indicia printed flush with an edge of a label formed on the sheet. Computer programs for printing indicia on a single label or a plurality of labels on a single sheet can be used to advantageously expedite mailing procedures from a single work station.

Further, the label sheets can be provided on a variety of page sizes and shapes to accommodate a plurality of label tapes. Multiple pages or sheets of the label tapes can be provided in which separable perforations allow the sheets to be separated for use.

In use, the postal meter tape label and combination meter tape/address label can be fed through a standard non-impact printer to print indicia within 1/4" or less from an edge of the meter label tape.

It should be understood that the examples and embodiments described herein are for illustrative purposes only and that various modifications or changes in light thereof will be suggested to persons skilled in the art and are to be included within the spirit and purview of this application and the scope of the appended claims.

Claims

I claim:

- 1           1.       An adhesive postal meter tape label capable of being printed by a single pass  
2       through a non-impact printer, wherein printed information is provided on the label 1/4" or less  
3       from an edge of said postal meter tape label.
  
- 1           2.       The postal meter tape label of claim 1, wherein the information printed is  
2       postal indicia.
  
- 1           3.       The postal meter tape label of claim 2, wherein the postal indicia is a facing  
2       identification mark.
  
- 1           4.       The postal meter tape label of claim 3, wherein the facing identification mark  
2       is flush with a top edge of the postal meter tape label.
  
- 1           5.       The postal meter tape label of claim 1, wherein said label is provided on a  
2       laminated sheet having a plurality of labels thereon.
  
- 1           6.       The postal meter tape label of claim 5, wherein said sheet includes an inverted  
2       L-shaped border along two intersecting sides of the postal meter tape label.
  
- 1           7.       The postal meter tape label of claim 5, wherein the sheet includes an F-shaped  
2       border.

1           8.     The postal meter tape label of claim 5, wherein the sheet comprises a front  
2 layer and a back layer having die-cut lines which are offset to maintain the integrity of the  
3 sheet.

1           9.     The postal meter tape label of claim 1, wherein said label includes an address  
2 information section integrally formed with a postage indicia section to form a unitary,  
3 combination meter tape/address label.

1           10.    The unitary article of claim 9, comprising a tab for folding over and onto a  
2 back side of an envelope to properly align the postage indicia and address information in  
3 position on a front side of an envelope in accordance with United States Postal Service  
4 specifications.

1           11.    The article of claim 10, wherein the postage indicia includes a facing  
2 identification mark flush with a top edge of the envelope.

1           12.    The article of claim 9, said article further including a two-dimensional  
2 information based indicia mark on the postage indicia section, said two-dimensional mark  
3 containing a security code matching a security code contained in a delivery point POSTNET  
4 bar code printed on the address information section.

1           13.    A method for printing postal indicia  $\frac{1}{4}$ " or less from an edge of a postal meter  
2 tape label, by a single pass through a non-impact printer so that postage indicia are printed

3 said method comprising:  
4 providing a laminated sheet having a border along at least one edge of said  
5 label, such that indicia is printed  $\frac{1}{4}$ " or less from the bordered edge of said label; and  
6 passing the sheet through a non-impact printer, which is programmed to print  
7 postal indicia.

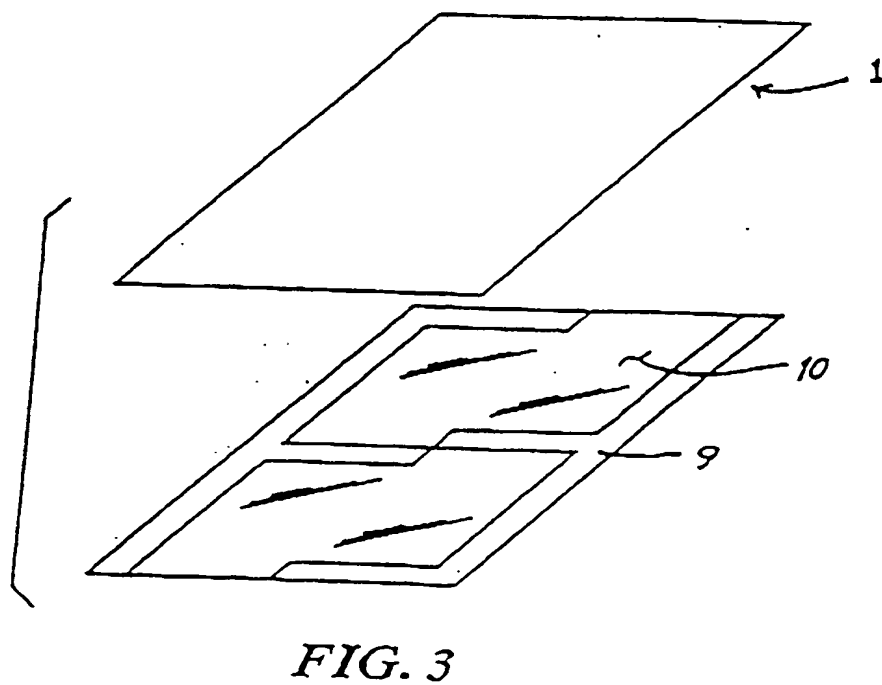
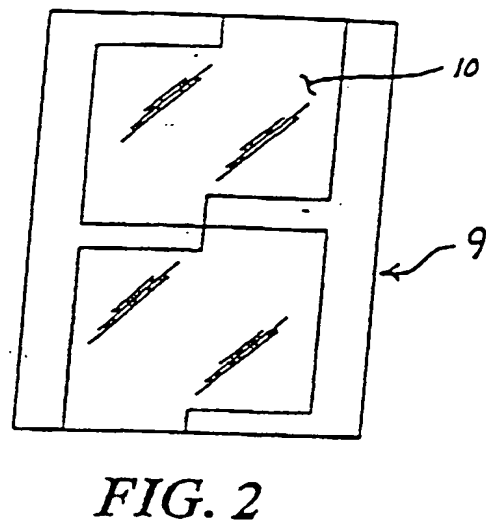
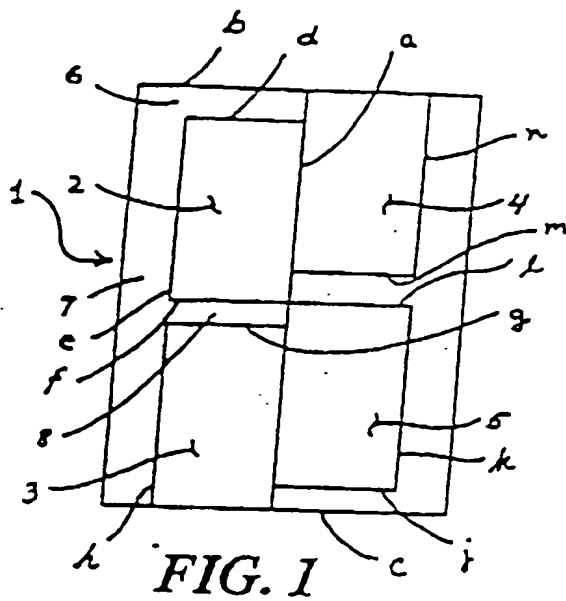
1 14. The method of claim 13, wherein said postal meter tape label further includes  
2 an address information section integrally formed with the postal meter tape label section to  
3 form a unitary postal meter tape/address label.

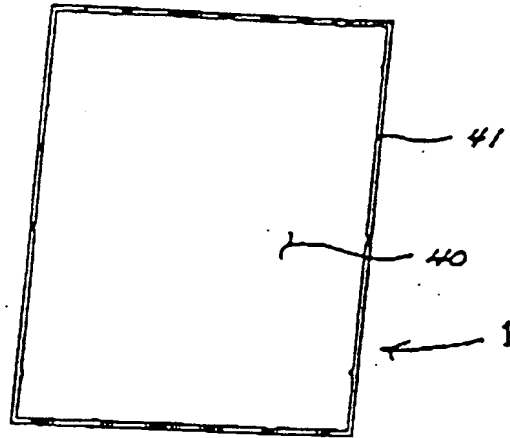
1 15. The postal meter tape label of claim 9, wherein said label is provided on a  
2 laminated continuous feed carrier having perforations spatially formed transverse to the  
3 length of the carrier to divide the carrier into a plurality of label sheets having labels  
4 releasably disposed thereon.

1 16. The postal meter tape label of claim 15, wherein said label is capable of being  
2 printed by a thermal printer device.

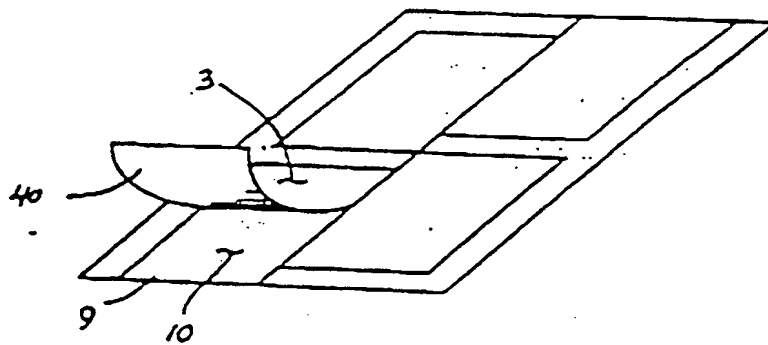
1 17. The postal meter tape label of claim 15, wherein at least one of said labels  
2 releasably disposed on each label sheet is a combination meter tape/address label.

1 18. The postal meter tape label of claim 17, wherein said label sheet further  
2 comprises a return address or tracking label formed separately from the combination meter  
3 tape/address label.





**FIG. 4**



**FIG. 5**

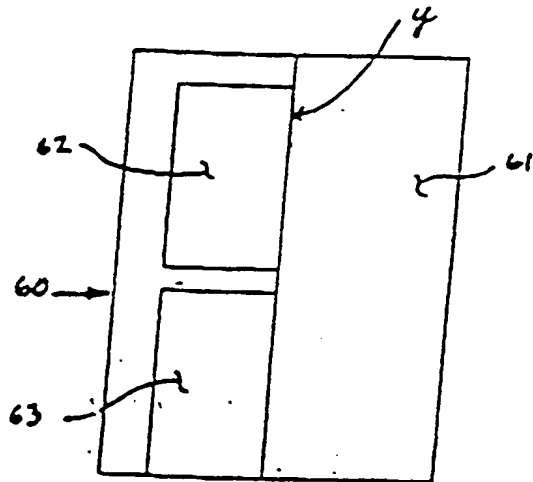


FIG. 6A

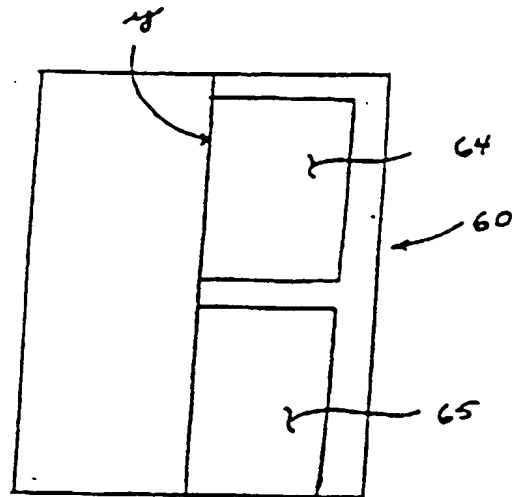
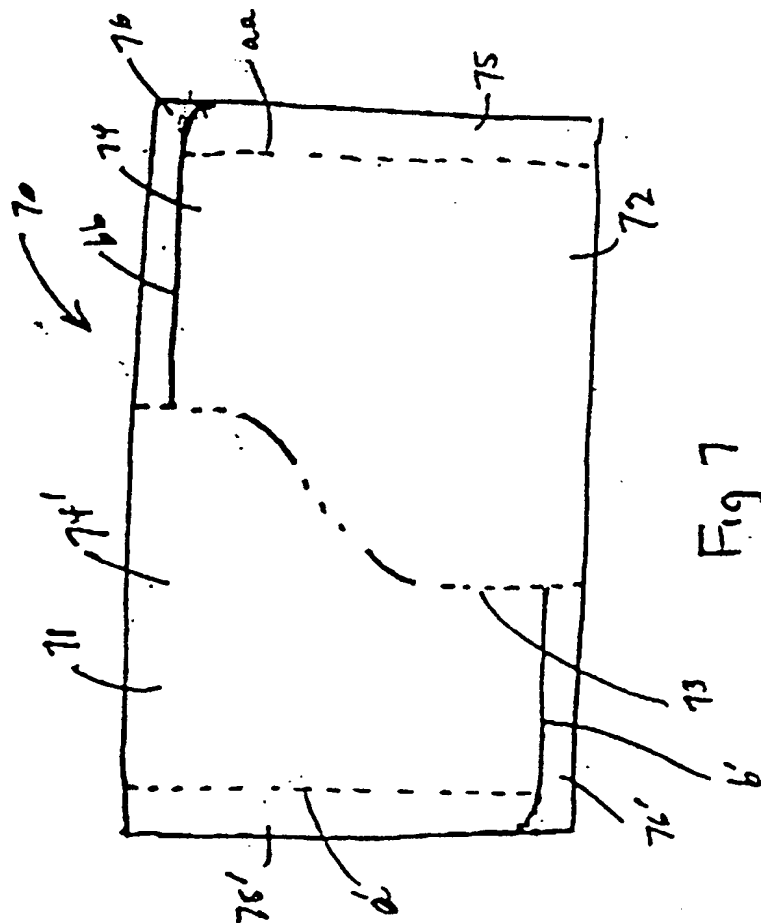
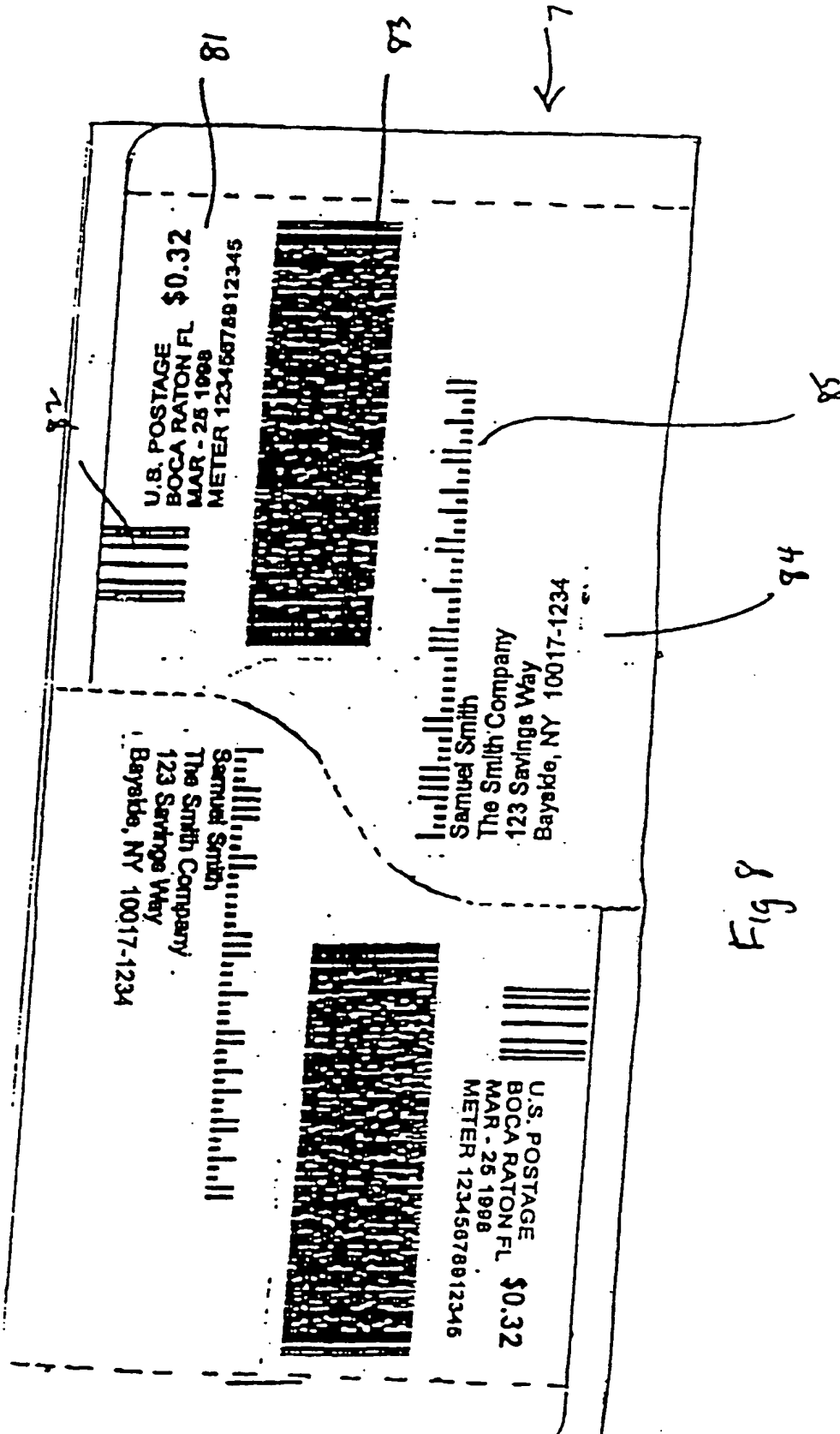


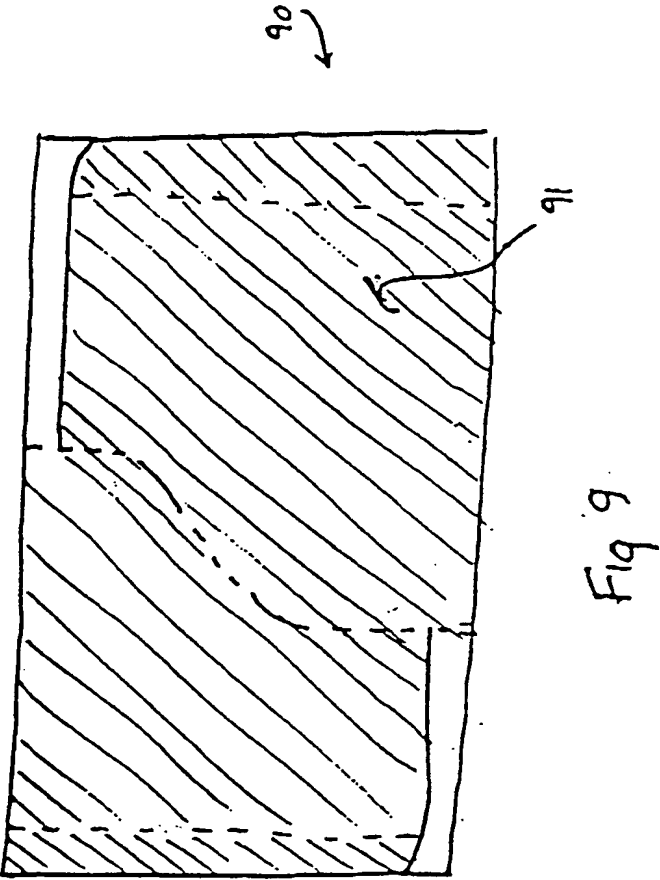
FIG. 6B





5/10





7/10

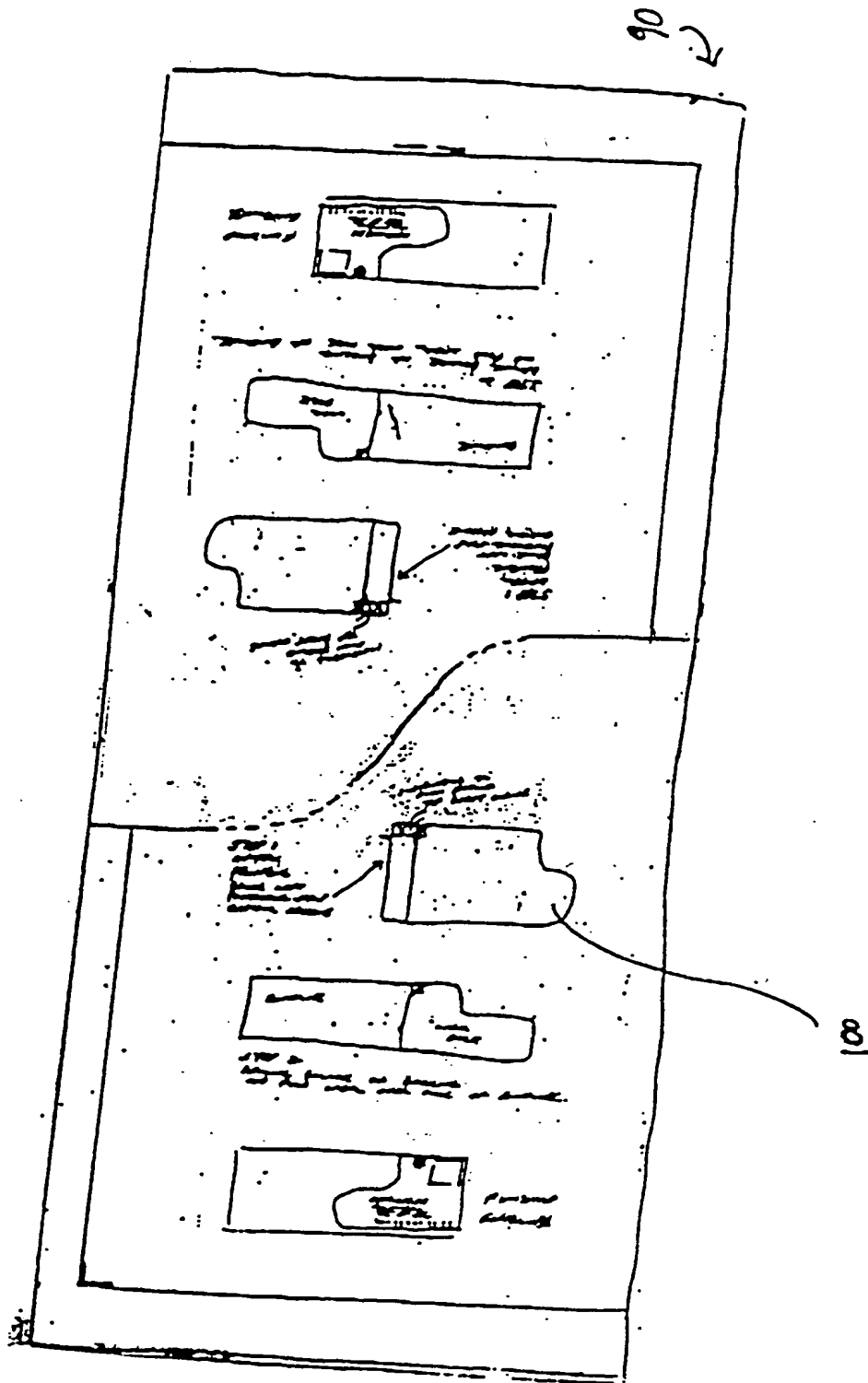
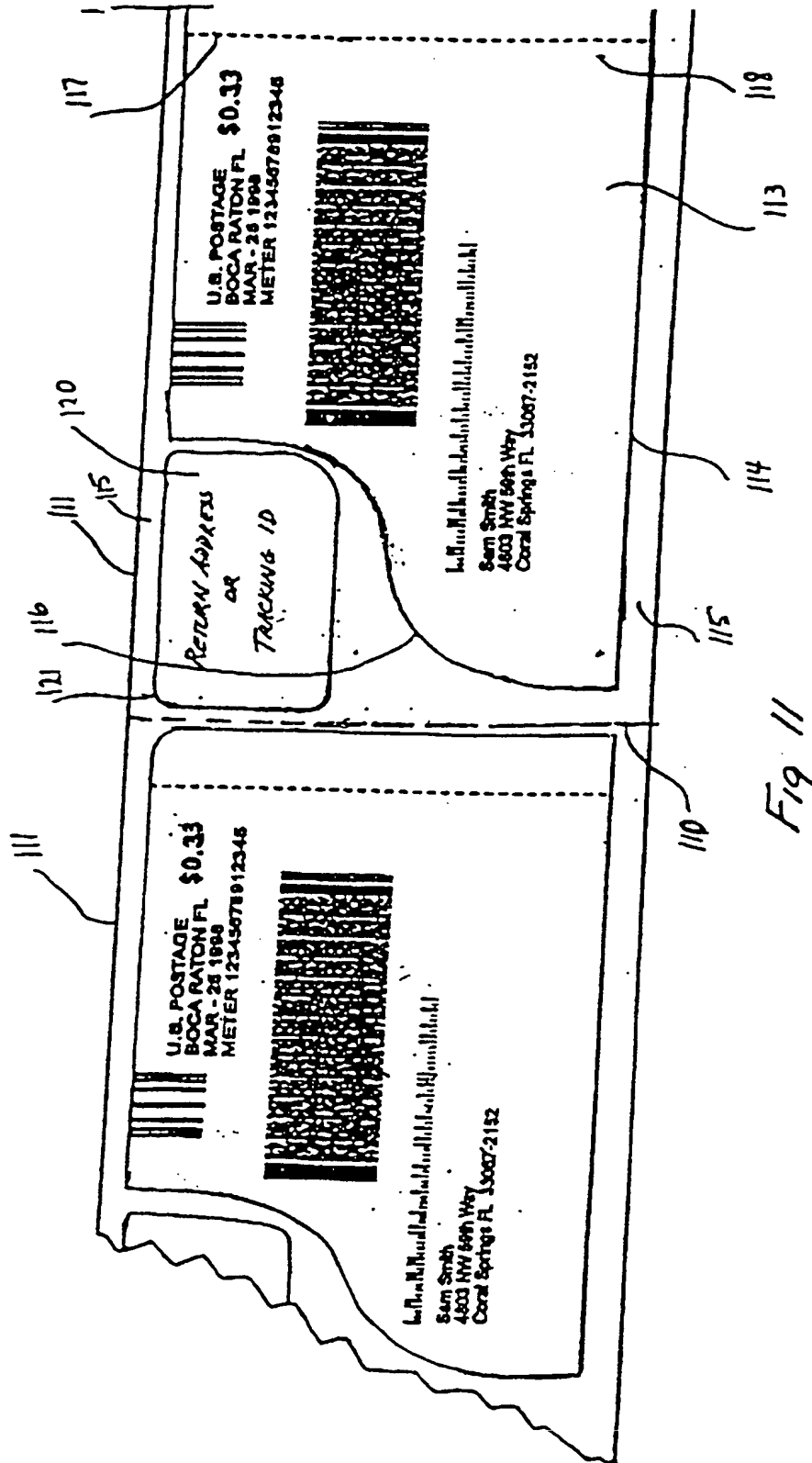


Fig 10



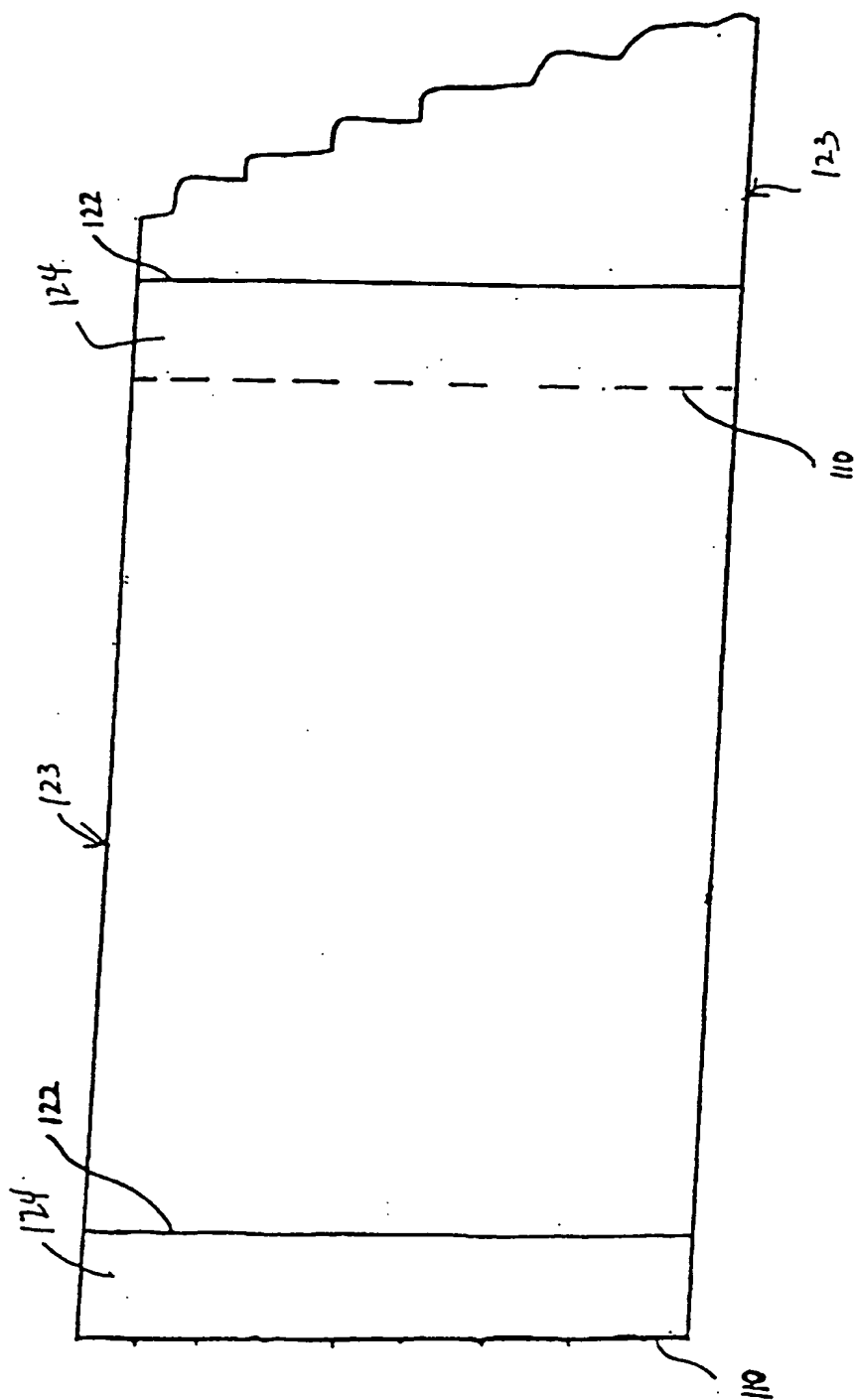


FIG 12

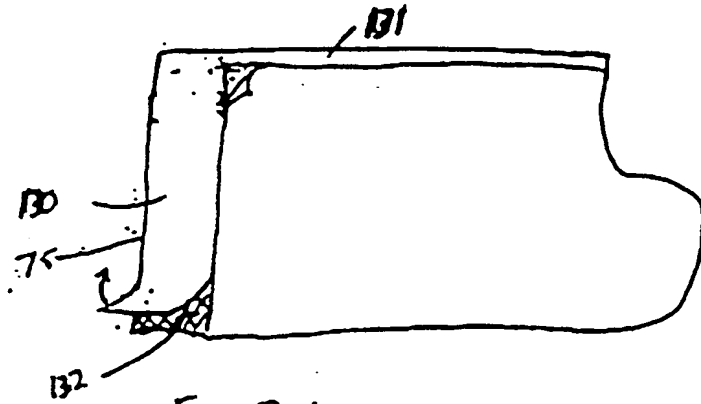


Fig. 13A

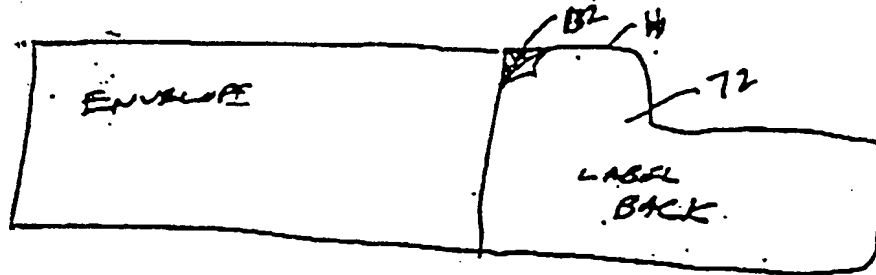


Fig. 13B

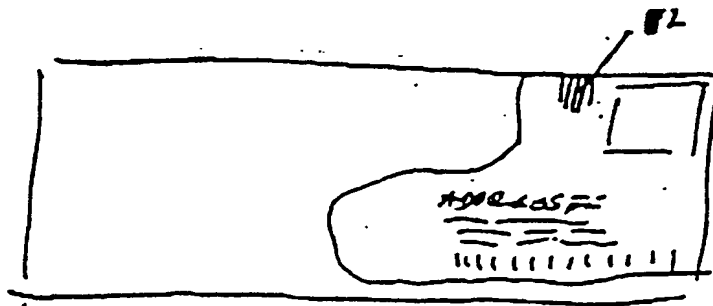


Fig. 13C

# INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US 99/23697

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 G09F3/10

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G09F B42D G07B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 746 450 A (GLENN PETKOVSEK) 5 May 1998 (1998-05-05) the whole document	1, 13, 15
P, X	WO 99 15340 A (COSTAR) 1 April 1999 (1999-04-01) the whole document	1-18
A	US 5 383 686 A (THE STANDARD REGISTER) 24 January 1995 (1995-01-24) the whole document	1, 13, 15
A	US 5 520 990 A (RALPH W. ROTERMUND) 28 May 1996 (1996-05-28) the whole document	1, 13, 15

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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"&" document member of the same patent family

Date of the actual completion of the international search

9 February 2000

Date of mailing of the international search report

17/02/2000

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Authorized officer

Loncke, J

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No  
PCT/US 99/23697

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5746450 A	05-05-1998	US 5697648 A	16-12-1997
		CA 2173382 A	21-10-1996
		US 5887904 A	30-03-1999
		US 5848809 A	15-12-1998
		US 5951053 A	14-09-1999
		US 5967558 A	19-10-1999
WO 9915340 A	01-04-1999	US 6010156 A	04-01-2000
		AU 9497798 A	12-04-1999
US 5383686 A	24-01-1995	US 5486021 A	23-01-1996
		US 5547227 A	20-08-1996
		US 5586788 A	24-12-1996
		US 5704650 A	06-01-1998
US 5520990 A	28-05-1996	NONE	





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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>7</sup> :</b>  <b>G09F 3/10</b>	<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 00/22602</b>  <b>(43) International Publication Date:</b> 20 April 2000 (20.04.00)
<b>(21) International Application Number:</b> PCT/US99/23697  <b>(22) International Filing Date:</b> 12 October 1999 (12.10.99)  <b>(30) Priority Data:</b> 09/172,593           14 October 1998 (14.10.98)   US 09/410,242           28 September 1999 (28.09.99)   US  <b>(71) Applicant:</b> LASER SUBSTRATES, INC. [US/US]; 6251 Park of Commerce Boulevard, Boca Raton, FL 33431 (US).  <b>(72) Inventor:</b> FABEL, Warren; 961 Iris Drive, Delray Beach, FL 33483 (US).  <b>(74) Agents:</b> WHITLOCK, Ted, W. et al.; Laser Substrates, Inc., 6251 Park of Commerce Boulevard, Boca Raton, FL 33431 (US).		<b>(81) Designated States:</b> AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.          Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
<b>(54) Title:</b> METER TAPE AND ADDRESS LABELS FOR NON-IMPACT PRINTER		
<b>(57) Abstract</b>  A template sheet forming postal meter labels or combination postal meter/address labels are described upon which postal indicia can be printed, by a non-impact printer, less than one-quarter inch from the edge of the label. The sheet includes a plurality of removably affixed meter tape or meter tape/address labels positioned on one face of a laminated individual or continuous feed sheet. The combination meter tape/address labels are self-aligning for conforming to United States Postal Service IBIP specifications.		

\*(Referred to in PCT Gazette No. 37/2000, Section II)

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**METER TAPE AND ADDRESS LABELS FOR NON-IMPACT PRINTER****Cross-reference to Related Applications**

This application is a continuation-in-part of Applicant's pending U.S. Patent Application Serial No. 09/172,593 filed October 14, 1998, which was a continuation-in-part  
5 of U.S. Provisional Patent Application Serial No. 60/087,595 filed June 1, 1998, now abandoned, and is a continuation-in-part of pending U.S. Patent Application Serial No. 09/102,852 filed June 23, 1998, which is a continuation-in-part of pending U.S. Patent Application Serial No. 09/097,246 filed June 12, 1998, which is a continuation-in-part of pending U.S. Patent Application Serial No. 08/049,946 filed April 20, 1993, now U.S. Patent  
10 No. 5,836,622.

**Background of the Invention**

This invention relates generally to postal meter tape and address labels, and more specifically, to meter tape or combination meter tape/address labels which can be printed with information or coding in accordance with United States Postal Service requirements.

15 Non-impact printers, such as laser or ink-jet printers, are being increasingly used to provide a fast, economical, and convenient method for printing data developed within computer systems and stored in databases. In most organizations, preparing and distributing mail represents a significant effort. In addition, the United States Postal Service (USPS) is automating its postage application procedures. With this automation, the USPS has  
20 developed strict specifications under its Information Based Indicia Program (IBIP) for certain indicia provided on an envelope to be mailed. For example, the USPS has set requirements for the size and location of various indicia including, but not limited to, the two-dimensional information based indicia (IBI) code, address format, POSTNET bar code location, and the

facing identification mark (FIM).

A FIM pattern is required on all IBI mail pieces. A FIM clear zone must contain no printed matter other than the FIM pattern. FIM bars must be between  $\frac{1}{2}$ " and  $\frac{3}{4}$ " high and 0.03125 (1/32 of an inch)  $\pm$  0.008" wide. The specifications further require that the FIM area  
5 be  $1\frac{1}{4}$ " wide x  $\frac{5}{8}$ " high. The left side of FIM clear zone must be 3" from the right edge of the envelope and the right edge of the FIM clear zone must be between  $1\frac{7}{8}$ "- $2\frac{1}{8}$ " from the right edge of the envelope, preferably  $1\frac{3}{4}$ ".

The use of non-impact printers, which cannot print less than  $\frac{1}{4}$ " from the edge of a page, can be disadvantageous in view of the requirement that the FIM is no more than  $\frac{1}{8}$ "  
10 from the top of an envelope or other mail piece. Because the printing of indicia no more than  $\frac{1}{8}$ " from the edge of an envelope face is not limited to the FIM, a standard envelope or meter tape label fed through a non-impact printer will not meet the USPS IBIP indicia placement requirements. Therefore, the task of automating the printing of envelopes or other postal forms using a non- impact printer can present a problem in meeting the USPS requirements.  
15 These disadvantages apply to laser or thermal-sensitive or thermal transfer printers. Laser printers typically print a single sheet fed through the printer one sheet at a time, whereas thermal-sensitive or thermal transfer printers typically print labels formed on a continuous-fed roll or fan-fold pack of blank labels.

#### Brief Summary of the Invention

20 It is an object of the subject invention to provide postal meter tape label on which indicia can be printed by a non-impact printer  $\frac{1}{4}$ " or less from the edge of the meter tape label  
50 that the specifications and requirements of the Information Based Indicia Program (IBIP) effected by the United States Postal Service (USPS) can be met. More specifically, it is an

object of the subject invention to provide a laminated sheet comprising a plurality of postal meter tape labels which can be printed to conform to the USPS IBIP specifications.

It is a further object of the invention to provide a combination postal meter tape and address label formed as a unitary article. The combination meter tape/address label can be provided as a laminated sheet comprising at least two layers, and said sheet can include a plurality of labels. Alternatively, the combination meter tape/address label can be provided as a continuous-feed roll or fan-fold pack of a plurality of label blanks comprising an upper ply of label material releasably adhered to a lower ply of backing material. Postal indicia can also be printed by a non-impact printer at a position of  $\frac{1}{4}$ " or less from an edge of the subject combination meter tape/address label.

In one embodiment concerning the meter tape label sheet, two sets of postal meter tape labels can be formed on a single sheet, one set on each of a first and second half of the sheet relative to the central longitudinal axis of said sheet. Preferably, the postal meter tape label sheet can be fed through an auxiliary envelope feeder tray of a non-impact printer. In use, printing occurs on a label situated or configured on the first, or left, half of the central longitudinal axis of said label sheet. The meter tape labels are positioned on the sheet in an offset configuration such that an at least  $\frac{1}{8}$ " margin, preferably an approximately  $\frac{1}{4}$ " margin, is provided between the leading edge, relative to the feed direction, of this left half of the sheet and the leading edge of the meter tape label. A margin of at least  $\frac{1}{8}$ ", and preferably an least approximately  $\frac{1}{4}$ " margin, is also provided on the left edge of the sheet. In the preferred embodiment, the margins form an inverted L-shaped border along a leading and left edge of the sheet, respectively corresponding to the leading and top edges of each label. In an embodiment comprising a plurality of labels formed on one half of the sheet, the left

margins bordering the top edge of each label on that half of the sheet can be coextensive. Thus, the L-shaped margins bordering the labels on one half of a sheet together form an F-shaped margin. The trailing edge of the left side of the sheet and the meter tape label can be coextensive, i.e., no margin or border is present.

5           When the sheet is reversed or rotated 180 degrees, the second, or right, half of the meter tape label sheet then becomes the left half of the meter tape label sheet. Accordingly, the meter tape labels are configured on this second half of the meter tape label sheet in the same fashion as the first half of the meter tape label sheet. Specifically, an approximately 1/4" margin is provided on the leading and left edges, relative to the feed direction, of the meter  
10   tape label sheet. This configuration provides for printing postal indicia within about 1/8" or less of an edge of a meter tape label.

          In the combination meter tape/address label embodiment for use with a laser printer, postage indicia, a FIM mark, and address information can also be printed on a single face of the sheet, wherein the indicia is automatically positioned and aligned in accordance with  
15   USPS standards. The meter tape/address label includes a tab which wraps around and folds over the right edge of an envelope in a face-up position, thereby providing a means for ensuring proper alignment and position. One advantage of the unitary article is that the POSTNET bar code and the two- dimensional IBI code are printed on a single label and are never separated.

20           The combination meter tape/address label article further comprises a separable border along the top edge of the label to offset printing so that a FIM mark can be printed 1/8" or less from that top edge, and thereby positioned 1/8" or less from the top edge of the envelope. The combination meter tape/address label can also include an alignment mark or guide to

ensure proper placement and alignment of the label on the envelope.

Preferably, the meter tape/address label is provided on a sheet which is sized such that the sheet can be fed into a non-impact printer via an envelope feeder tray. More preferably, the sheet can include a plurality of meter tape/address labels, either having a plurality of  
5 meter tape/address labels on a single sheet for printing by laser printer, or as a plurality of meter tape/address labels disposed as a continuous-feed roll or fan-fold pack of labels for use with a thermal-sensitive or thermal transfer printer.

In any of these embodiments, the label sheets of the subject invention comprise at least two layers which are laminated together: a first, top ply and a second bottom ply which  
10 forms a backing or carrier for the overlying top layer. The label sheets can be die-cut in the top layer in particular configurations to achieve the advantages as described. The first top ply

preferably can include an adhesive material disposed on its back face. Preferably, pressure-sensitive adhesive material, which is well-known and understood in the art for use with labels, is disposed on the back face of the top layer such that a perimeter margin of about  
15 1/16" to about 1/8" of adhesive-free area is provided to allow for oozing or "bleeding" of the adhesive when exposed to heat from a laser printer.

The carrier ply can be deposited with adhesive-release material, e.g., silicone release material, on its front face which opposes and contacts the top layer. The release material can be deposited in a particular predetermined pattern ("patterned release") so as to come into  
20 contact with or engage only the portion of the top layer forming the meter tape or address label so the label can be removed from the backing layer. Thus, certain margins or border areas of the top layer can be made non-releasable and remain substantially permanently affixed to the carrier layer. Alternatively, the adhesive-release material can fully coat the

front face of the carrier layer.

Advantageously, the subject invention provides a rapid and convenient article and method for printing postal indicia on a meter tape label or combination meter tape/address label in accordance with USPS IBIP specifications and which can be perfectly aligned on an envelope. In use, a sheet comprising the label or labels is printed on a non-impact printer, the backing layer and any non-used border area is removed from the top layer to expose adhesive disposed on the back face of the top layer, and the label is adhered to the mail piece, e.g., an envelope, in a particular alignment such that certain indicia, e.g., the FIM mark is placed in proper position in accordance with the requirements of the USPS.

#### Brief Description of the Drawings

Fig. 1 shows a plan view of a top face of one embodiment of the article of manufacture according to the subject invention, illustrating an offset configuration for a plurality of postal meter tape labels.

Fig. 2 shows a plan view of a top, or inside, face of the second, carrier layer of one embodiment of the article according to the subject invention, illustrating a patterned configuration of the adhesive-release material covering an area of said front face of said second layer.

Fig. 3 shows the patterned adhesive release material on the second carrier layer and its relative position to the overlying top layer. The top layer is shown prior to die-cutting of the meter tape labels.

Fig. 4 shows a plan view of a back face of the top layer of the meter tape label sheet, illustrating the area covered by adhesive, leaving an approximately 1/16" adhesive-free area around the perimeter of said top layer.



Fig. 5 shows a meter tape label removably affixed to the carrier layer.

Figs. 6A and 6B show further embodiments of a meter tape label sheet according to the subject invention wherein each sheet has one half serving as a label layer, and the other half as a carrier layer. Fig. 6A shows an embodiment wherein the label tape is configured on the left half of the sheet. Fig. 6B shows an embodiment wherein the label layer is configured on the right half of the sheet.

Fig. 7 shows an elevated view of a front face of a top layer of the combination meter tape/address label sheet embodiment, in particular, a dual label configuration illustrating die-cut and fold lines.

Fig. 8 shows a dual label configuration of a meter tape/address label sheet embodiment as shown in Fig. 7, having information printed thereon.

Fig. 9 shows a front or inner face of the back carrier layer of the embodiment shown in Fig. 7, illustrating release material patternly disposed thereon.

Fig. 10 shows a back face of the back layer of the embodiment shown in Fig. 7, illustrating instructional information preprinted thereon.

Fig. 11 shows a front face of a continuous-feed embodiment of a combination meter tape/address label according to the subject invention. This Figure shows one complete face of a first meter tape/address label and a partial face of a second meter tape/address label which follows the first label on the continuous-feed roll.

Fig. 12 shows the outer face of the backing sheet for the embodiment illustrated in Fig. 11, showing the score lines and perforations formed thereon.

Figs. 13A-13C show a stepwise method for applying the combination meter tape/address label to an envelope to properly position mailing indicia in accordance with

USPS standards. Fig. 13A shows a back face of the subject article; Fig. 13B shows a back face of the subject article aligning the tab portion along the edge of an envelope; Fig. 13C shows the front face of the meter tape/address label as applied to an envelope.

#### Detailed Description of the Preferred Embodiments

5           The subject invention can be understood by reference to the accompanying drawings.

Fig. 1 shows a plan view of a front face of one embodiment of the postal meter tape label sheet 1 according to the subject invention, illustrating die-cut lines a, d, e, f, g, h, j, k, l, m, and n, forming an offset configuration of a plurality of postal meter tape labels 2-5. A first die-cut line a extends from a top edge b of the label sheet 1 along a central longitudinal axis  
10   to a bottom edge c of the label sheet 1, dividing said label sheet into left and right halves.

Further die-cuts can be made in each half of the sheet to form a plurality of labels 2-5. For convenience, the subject invention is described by referring to the left half of the sheet comprising die-cut lines d-h, forming labels 2 and 3 having borders 6, 7, and 8 around three edges of label 2 and two edges of label 3. These borders 6, 7, and 8 advantageously allow a  
15   non-impact printer, e.g., a laser printer, to print indicia flush with an edge of the label. The labels formed on the left side of the sheet are configured such that border 8 forming a bottom margin of label 2 is coincident as a top border for label 3. Border 7 extends along edge e of label 2, across the width of border 8, and along edge h of label 3. The bottom edge of label 3 is coincident with bottom edge c of the label sheet 1. Thus, an "F" shaped border is formed  
20   by the die-cuts on the left side of the label sheet 1.

Die-cuts are made in the right side of label sheet 1 to form labels 4 and 5 in a similar manner and configuration, except that the right side is reversed and inverted in relation to the left side.

Fig. 2 shows a plan view of a top, or inner, face of the second, or carrier, layer 9 of one embodiment of the subject label sheet. The top face of carrier layer 9, which contacts the back face of the front layer when the top and carrier layers are laminated together, is shown having a patterned configuration of adhesive-release material 10 disposed on the top face of said carrier layer. Adhesive-release material 10 can be disposed in a configuration which matches the position of labels 2-5 formed on the first top layer of the label sheet or can be disposed to cover substantially the entire front face of the carrier layer (not shown). In a preferred embodiment, the area of the carrier layer 9 conforming to the F-shaped borders of the top layer is free of adhesive-release material.

Fig. 3 shows the patterned adhesive-release material 10 on the second carrier layer 9 and its relative position to the overlying top layer. Fig. 3 shows the label sheet 1 prior to die-cutting of the meter tape labels.

Fig. 4 shows a plan view of a back face of the top layer of the meter tape label sheet 1, illustrating the area covered by adhesive 40 in a preferred embodiment. Preferably, adhesive 40 is disposed on the back or inner face of the top layer to substantially cover the entire area of the back face, leaving an approximately 1/16" adhesive-free border 41 around the perimeter of said sheet 1. This border allows for oozing or "bleeding" of the adhesive when exposed to heat from a laser printer so that adhesive does not bleed over the edge of the sheet when run through the printer.

Fig. 5 shows meter tape label 3 as being removably affixed to the carrier layer 9. Adhesive 40 is disposed substantially on the entire back surface of label 3 and is removable from adhesive-release material 10 patternly disposed on back layer 9.

Alternatively, as shown in Figs. 6A and 6B, an embodiment of the subject invention

can include a label sheet 60 wherein one half of the sheet, divided along a substantially central longitudinal axis y, is configured as described herein, i.e., the front sheet has adhesive-backed label tape components 62-63 (on the left-hand embodiment) and label tape components 64-65 (in the right-hand embodiment) die-cut from the top layer; the back layer, which can be patternly coated with an adhesive-release material, serves as a carrier. The other half of the sheet is reversed, i.e., the top layer serves as a carrier having adhesive-release material disposed on the inner face as described herein, and the back layer serves as the label tape, having adhesive material disposed on its inner face. For convenience of reference, the sheets are referred to as having a left half and right half when viewed facing the front face of the sheet. This embodiment can advantageously provide a sheet having instructions or directions for use or other indicia printed on both outward facing faces. Thus, the instructions for use are viewable regardless of the face of the sheet which is being printed.

In one configuration of this embodiment (Fig. 6A), the left half of the label sheet comprises label tapes 62, 63 on the top layer, and the left half of the back layer serves as the carrier (not shown). The right half 61 of the label sheet is an opposing configuration wherein the right half of the top layer serves as the carrier and the right half of the back layer serves as the labels (not shown). When viewed from their outer faces, the front and back layers are identical.

In this embodiment, adhesive-release material can be disposed on the right half of the back face of the top layer. Adhesive-release material can be disposed on substantially the entire surface of the back face of the top layer or can be patternly disposed thereon to conform to the label tape configuration. Labels on the right half of the sheet can be die-cut from the carrier layer. Adhesive material can be disposed over substantially the entire surface

of the inner face of the right side of the back layer. Preferably, an adhesive-free border can be provided to preclude oozing or bleeding of hot-melt adhesive from the edges of the sheet, potentially causing damage to the printer. A preferred adhesive-free border is approximately 1/16" in width.

5 As would be readily understood, and as shown in Fig. 6B, the right half of the label sheet can alternatively comprise label tapes 64, 65 on the top layer; the right half of the back layer correspondingly serving as the carrier. The label sheet shown in Fig. 6B comprises a left half, which comprises a carrier layer; and the left half of the back layer comprises label tape components configured in a substantially similar fashion as on the front layer.

10 Because the front and back layers include a die-cut substantially along the central longitudinal axis, it is important that these die cuts are slightly offset from one another, i.e., not superimposed over one another, so that the page maintains its integrity.

A preferred embodiment of the subject combination meter tape/address label sheet 70 is shown in Fig. 7, wherein the preferred embodiment includes a dual label sheet comprising  
15 labels 71 and 72 which are adjoined by a curvilinear juncture line 73 which divides the two labels 71 and 72. As shown, it is preferable to provide the labels in an opposing or reverse juxtaposed position so that both labels can be accommodated on a single sheet without waste of surface area of the sheet.

Die-cut and perforation lines are provided on the top layer to define particular areas of  
20 the label or borders thereof. In particular, perforation line aa divides a label into a section 74 which is positioned on the front face of an envelope, and tab 75 which wraps around or folds over along perforation line aa so that it becomes positioned on the back face of the envelope. Section 74 and tab 75 remain co-extensive along fold line or perforation line aa.

A die-cut line bb (also forming the top edge of the label) can be provided so that label 72 can be separated from a backing layer along border 76. Border 76 also provides a margin of at least 1/8" to offset the edge of the printed label so that it can receive a FIM mark flush with its top edge formed by die-cut line bb. The trailing edge of the label is formed by curvilinear line 73 which is preferably a combination of alternating perforation and die-cut lines. The perforations are formed in the front sheet so as to retain integrity of the dual label sheet. The inversely positioned label 71 is shown having corresponding perforation a' and die-cut line b' forming corresponding sections 74', 75' and 76'.

Fig. 8 shows the embodiment of the combination meter tape/address label sheet 70 as shown in Fig. 7, having postal indicia and address information printed on the front face of the top layer. Shown are postage indicia 81, facing identification mark (FIM) 82, two-dimensional IBI code 83, addressee information 84, and POSTNET bar code 85. For security of postage, a security code is provided in both the addressee label (in particular, the delivery point zip code) and the two-dimensional IBI bar code or indicia. These codes must match to prevent rejection by automatic postal sorters/readers. Thus, keeping the addressee mailing label and mailing indicia sections as part of a unitary article or section within the mailing label, can prevent mismatch of the security codes provided therein.

In addition, USPS specifications require that the positioning of certain indicia, including a FIM and coded information, have a five percent (5%) variation or less (maximum 5% "skewer") so that automated sorters/readers can process the mail piece. Thus, a unitary article which provides an alignment means for proper positioning of the indicia can be advantageous.

Fig. 9 shows the front face of back layer 90 of the subject article, illustrating the

pattern of adhesive-release material 91 disposed on said back layer.

Fig. 10 shows the back face of back layer 90 illustrating instructional information which can be preprinted on that back face.

A second embodiment of the subject meter tape/address label invention useful for  
5 continuous-feed printers, e.g., thermal-sensitive or thermal transfer printers, is illustrated in Figures 11 and 12. As in the embodiment described above for use with a laser printer, this second embodiment also comprises a top ply forming the printable labels, and a backing ply used as a carrier for those labels.

Fig. 11 shows the front face of the subject meter tape/address label configured for use  
10 on a continuous-feed printer, e.g., a thermal-sensitive or thermal transfer printer.

Thermal-sensitive and thermal transfer printers typically employ an approximately 4¼" wide roll of labels which can be continuously fed through a friction sheet feeding device. For thermal-sensitive printers, the label can be coated with a self-contained image coating, standard in the industry and commercially available, to form images by the thermal-sensitive  
15 printer, which uses heated pins to form the images on the label. Thermal transfer printers use heated pins to contact a ribbon which transfers material from the ribbon to the label face to form the images on the label.

In the embodiment shown in Fig. 11, the continuous roll is divided by a perforation 110 to form individual label sheets 111. This perforation 110 is formed through the backing  
20 ply (further illustrated in Fig. 12) and between the independent label sheets 111 to provide separable label sheets. Thus, when one label sheet has been printed and its following label sheet has not, the printed sheet can be separated easily from the non-printed sheet along perforation line 110.

Each individual label sheet 111 comprises a combination meter tape/address label 113 which is die cut along die-cut lines 114 from the remainder of the upper ply. This remainder of the upper ply is termed the "matrix" 115. Preferably, the matrix 115 is removed in the final manufacturing process for making the label product so that removal of the labels from the backing sheet is facilitated. The meter tape/address label 113 can receive printed information and postage indicia in the manner as described for labels 71 and 72 in Fig. 7. Meter tape/address label 113 has a similar curvilinear edge 116 as labels 71 and 72, and has a perforation 117 formed in the top ply which divides the label 113 into a label section 118 and tabs 119. Perforation 117 corresponds to the perforations the embodiment shown in Fig. 7 which divides the labels 71 and 72 into section 74 and top 75. The label sheet 111 further comprises a second label 120 also formed by a die-cut 121 in the upper ply. Matrix area 115 can also be preferably removed from around the second label 120 in the final product.

The second label 120 can be useful as an address label or as a tracking label. However, second label 120 advantageously also serves as an additional friction surface for the friction sheet-feeding device typically used in roll-type continuous feed printers.

Fig. 12 shows the outer face of the backing sheet 123 for the embodiment illustrated in Fig. 11, showing the score lines 122 and perforations 110 formed thereon. Score lines 122 are made so that a peel-off strip 124 is formed in the backing sheet 123. Peel off-strip 124 allows that portion of the backing sheet to be removed, thereby exposing adhesive coated on the inner face of tab 119 (Fig. 11), useful for affixing the subject meter tape/address label to an envelope.

Use of the subject combination meter tape/address label is illustrated in Figs. 13A-13C. Fig. 13A shows the back layer of the subject article wherein the back layer 130



corresponding to tab 75 is peeled away from tab 75 to expose adhesive 132 on the inner face of the front sheet of the front layer of the article. Removal of back layer 130 also removes top margin 131 of both top and back layers. Tab 75 is then placed behind an envelope so that the meter tape/address label extends from the edge of the envelope and aligns top edge bb  
5 with the top edge of the envelope. The carrier layer can then be removed from the meter tape/address label portion or section folded over the envelope to place the meter tape/address label in proper position and in accordance with USPS requirements. In particular, the FIM 82 is placed less than 1/8" from the top edge of the envelope and preferably flush therewith. (Fig. 13C).

10 The subject postal meter tape label sheet and combination meter tape/address label have a plurality of advantages, including the capability to have indicia printed flush with an edge of a label formed on the sheet. Computer programs for printing indicia on a single label or a plurality of labels on a single sheet can be used to advantageously expedite mailing procedures from a single work station.

15 Further, the label sheets can be provided on a variety of page sizes and shapes to accommodate a plurality of label tapes. Multiple pages or sheets of the label tapes can be provided in which separable perforations allow the sheets to be separated for use.

In use, the postal meter tape label and combination meter tape/address label can be fed through a standard non-impact printer to print indicia within 1/4" or less from an edge of the  
20 meter label tape.

It should be understood that the examples and embodiments described herein are for illustrative purposes only and that various modifications or changes in light thereof will be suggested to persons skilled in the art and are to be included within the spirit and purview of this application and the scope of the appended claims.

Claims

I claim:

- 1           1.       An adhesive postal meter tape label capable of being printed by a single pass  
2       through a non-impact printer, wherein printed information is provided on the label  $\frac{1}{4}$ " or less  
3       from an edge of said postal meter tape label.
  
- 1           2.       The postal meter tape label of claim 1, wherein the information printed is  
2       postal indicia.
  
- 1           3.       The postal meter tape label of claim 2, wherein the postal indicia is a facing  
2       identification mark.
  
- 1           4.       The postal meter tape label of claim 3, wherein the facing identification mark  
2       is flush with a top edge of the postal meter tape label.
  
- 1           5.       The postal meter tape label of claim 1, wherein said label is provided on a  
2       laminated sheet having a plurality of labels thereon.
  
- 1           6.       The postal meter tape label of claim 5, wherein said sheet includes an inverted  
2       L-shaped border along two intersecting sides of the postal meter tape label.
  
- 1           7.       The postal meter tape label of claim 5, wherein the sheet includes an F-shaped  
2       border.

1           8.     The postal meter tape label of claim 5, wherein the sheet comprises a front  
2 layer and a back layer having die-cut lines which are offset to maintain the integrity of the  
3 sheet.

1           9.     The postal meter tape label of claim 1, wherein said label includes an address  
2 information section integrally formed with a postage indicia section to form a unitary,  
3 combination meter tape/address label.

1           10.    The unitary article of claim 9, comprising a tab for folding over and onto a  
2 back side of an envelope to properly align the postage indicia and address information in  
3 position on a front side of an envelope in accordance with United States Postal Service  
4 specifications.

1           11.    The article of claim 10, wherein the postage indicia includes a facing  
2 identification mark flush with a top edge of the envelope.

1           12.    The article of claim 9, said article further including a two-dimensional  
2 information based indicia mark on the postage indicia section, said two-dimensional mark  
3 containing a security code matching a security code contained in a delivery point POSTNET  
4 bar code printed on the address information section.

1           13.    A method for printing postal indicia  $\frac{1}{4}$ " or less from an edge of a postal meter  
2 tape label, by a single pass through a non-impact printer so that postage indicia are printed

3 said method comprising:

4 providing a laminated sheet having a border along at least one edge of said  
5 label, such that indicia is printed  $\frac{1}{4}$ " or less from the bordered edge of said label; and

6 passing the sheet through a non-impact printer, which is programmed to print  
7 postal indicia.

1 14. The method of claim 13, wherein said postal meter tape label further includes  
2 an address information section integrally formed with the postal meter tape label section to  
3 form a unitary postal meter tape/address label.

1 15. The postal meter tape label of claim 9, wherein said label is provided on a  
2 laminated continuous feed carrier having perforations spatially formed transverse to the  
3 length of the carrier to divide the carrier into a plurality of label sheets having labels  
4 releasably disposed thereon.

1 16. The postal meter tape label of claim 15, wherein said label is capable of being  
2 printed by a thermal printer device.

1 17. The postal meter tape label of claim 15, wherein at least one of said labels  
2 releasably disposed on each label sheet is a combination meter tape/address label.

1 18. The postal meter tape label of claim 17, wherein said label sheet further  
2 comprises a return address or tracking label formed separately from the combination meter  
3 tape/address label.



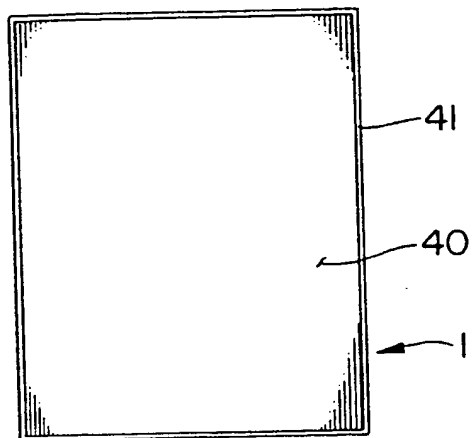


FIG. 4

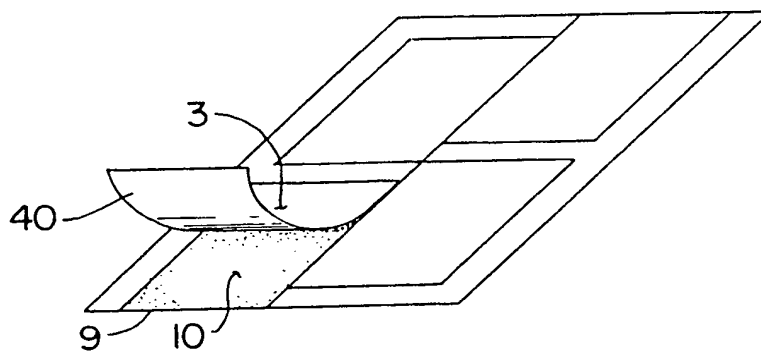


FIG. 5

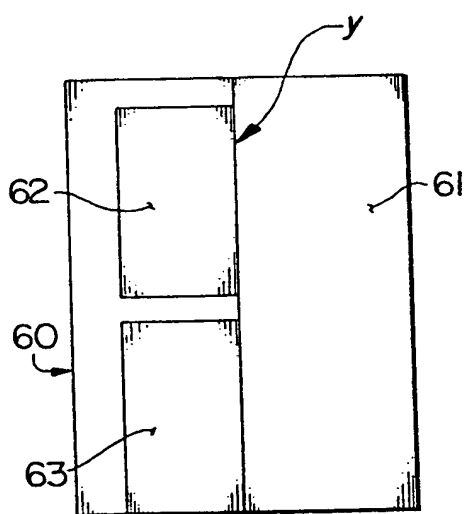


FIG. 6A

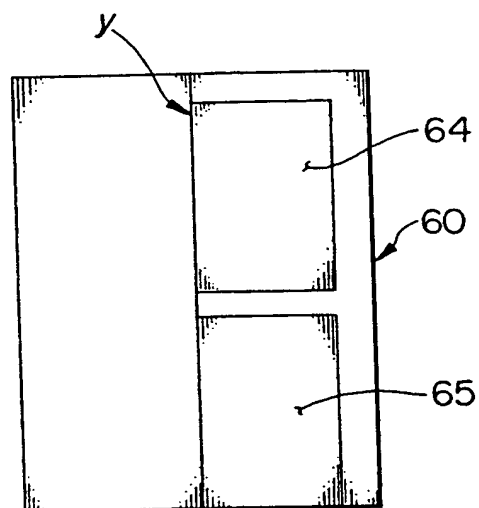
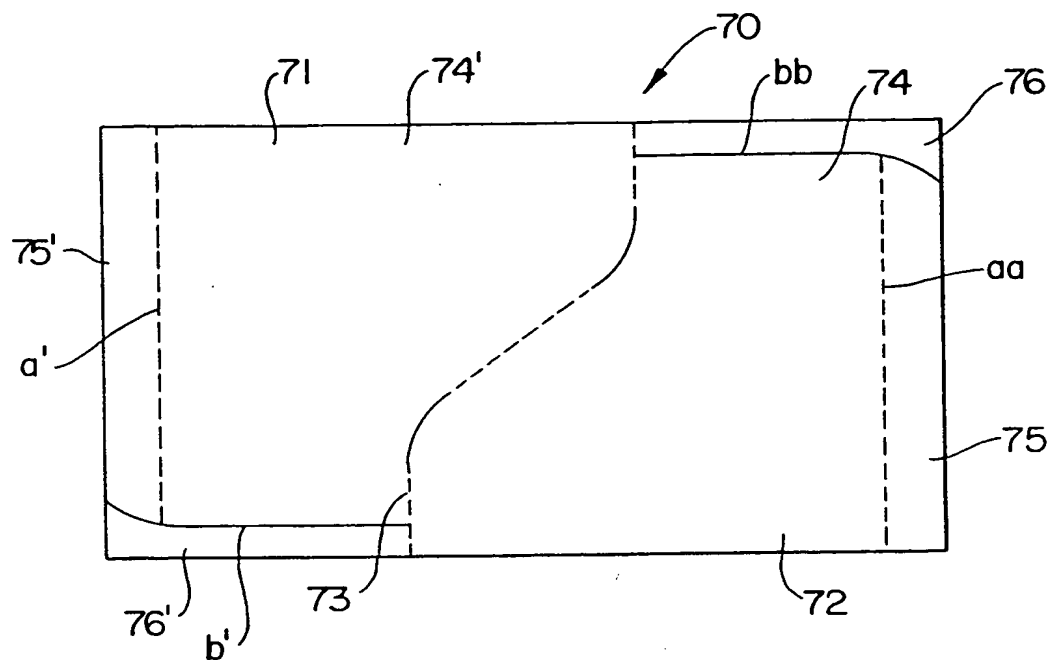


FIG. 6B

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FIG. 7

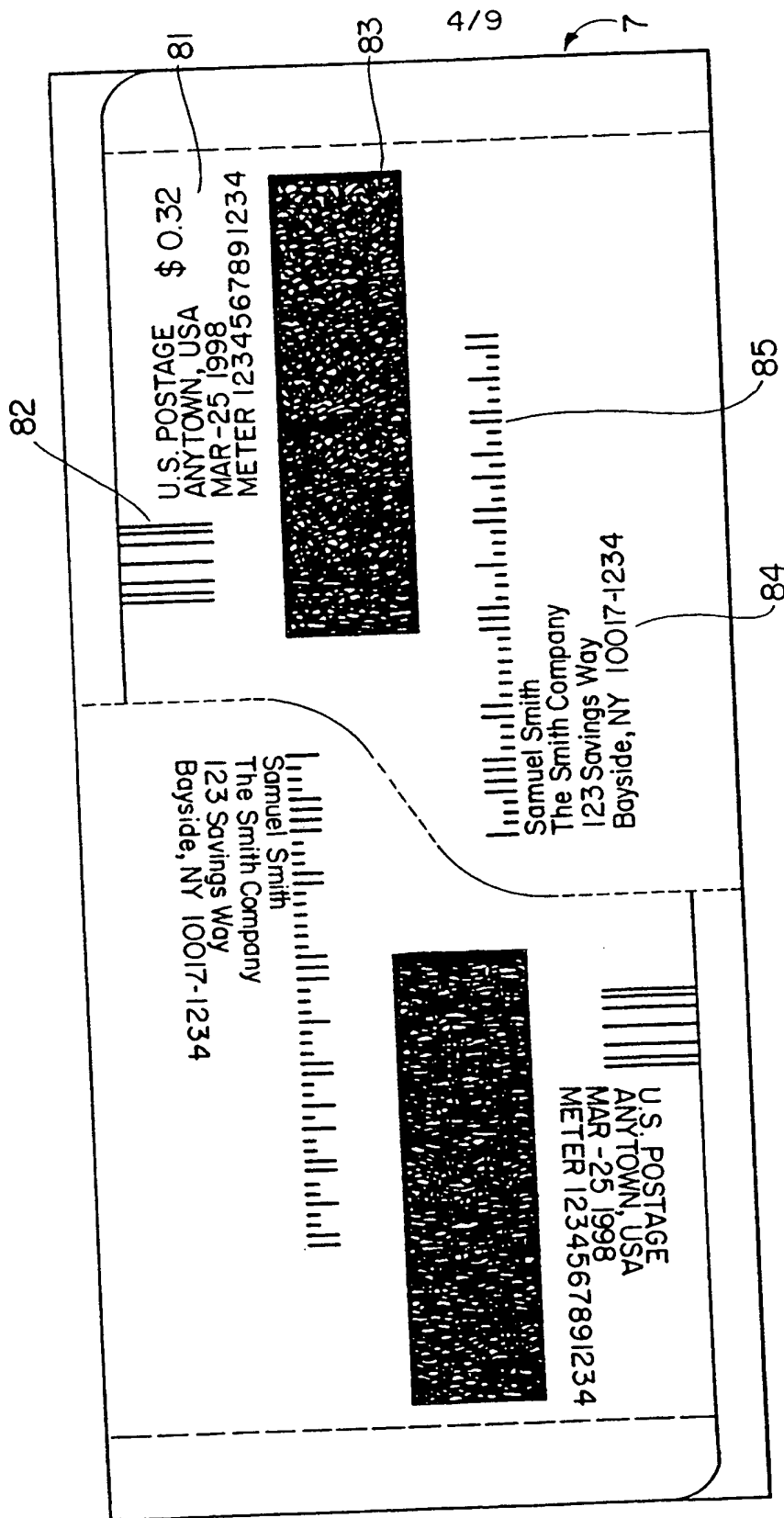


FIG. 8



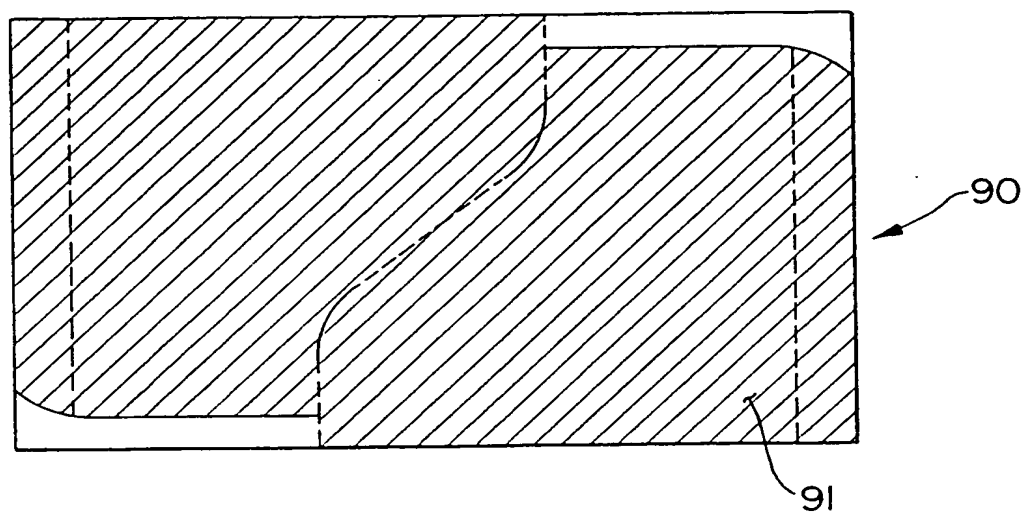


FIG. 9

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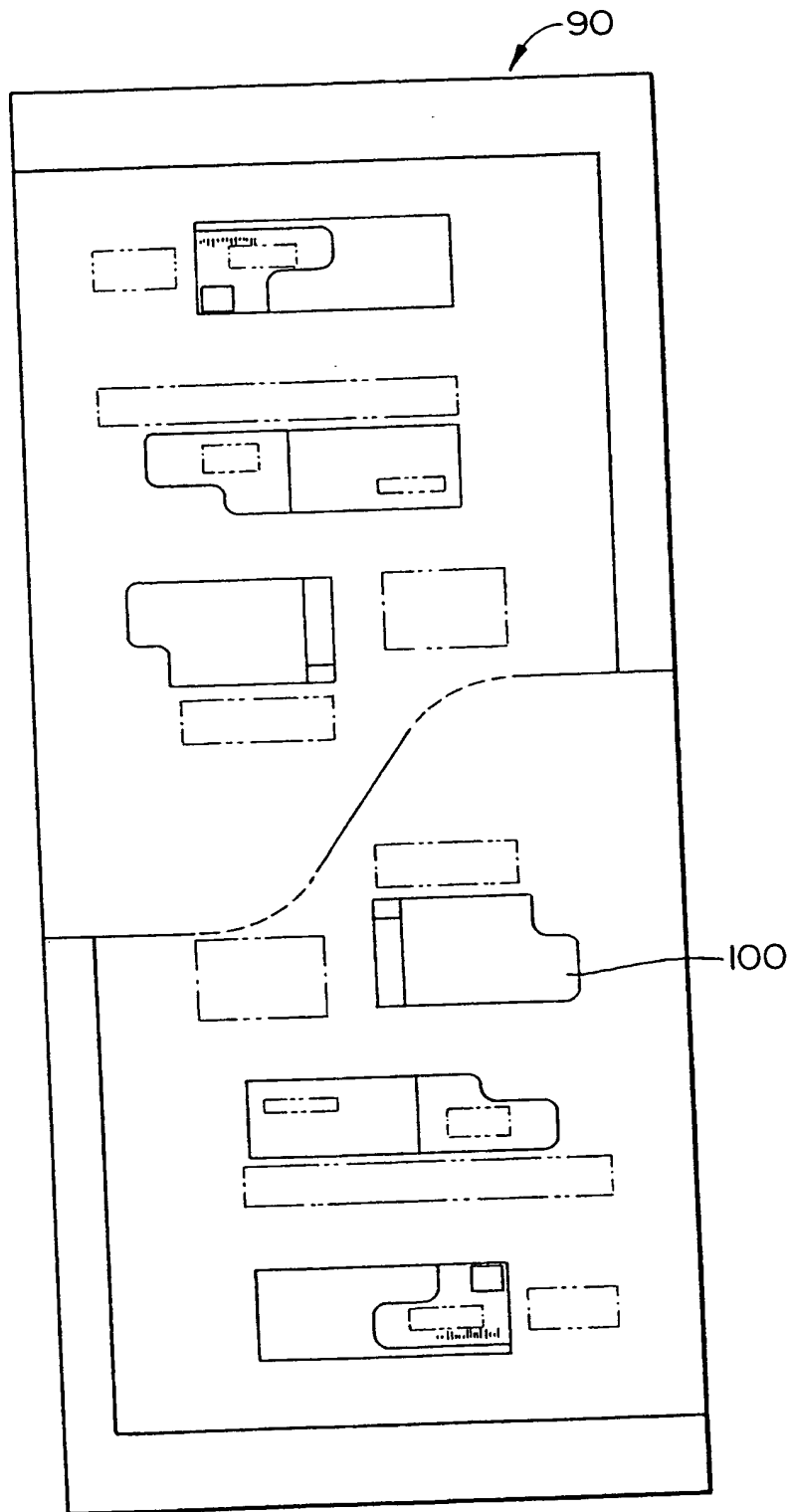


FIG. 10

SUBSTITUTE SHEET (RULE 26)

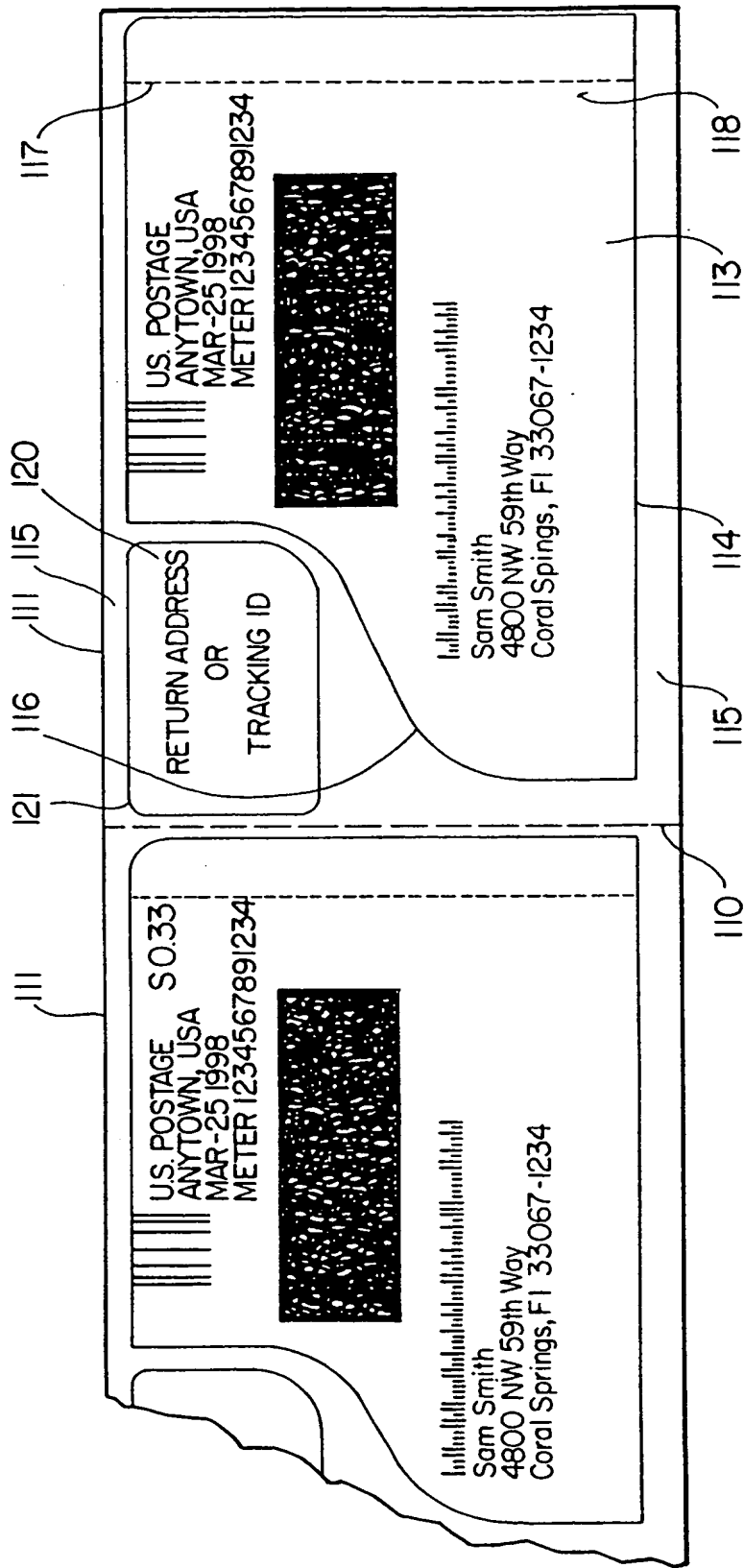


FIG. 11

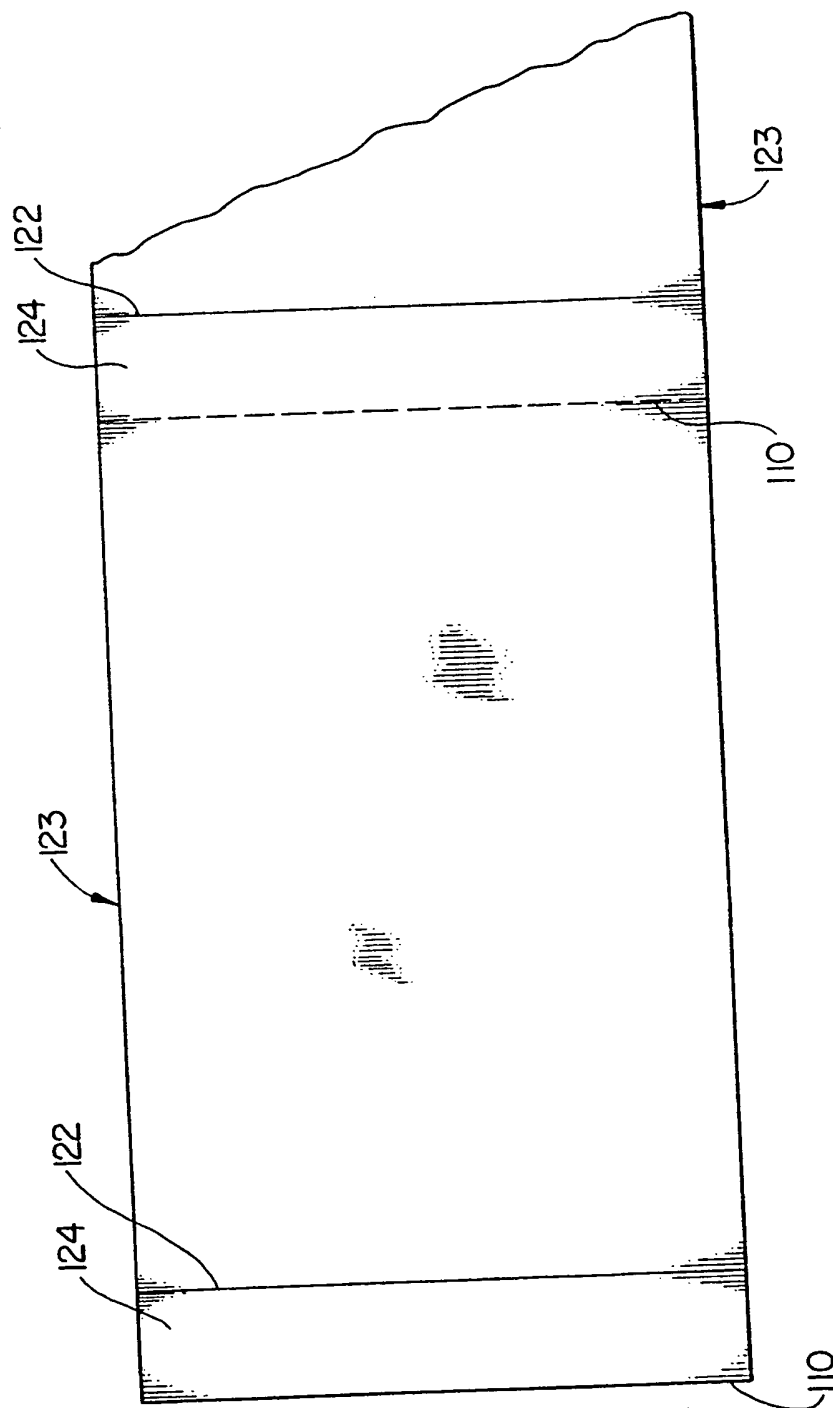
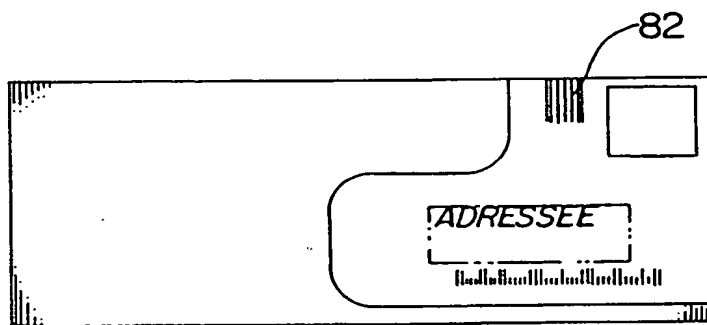
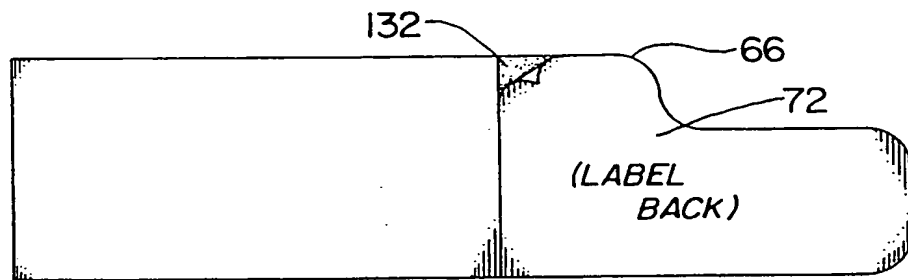
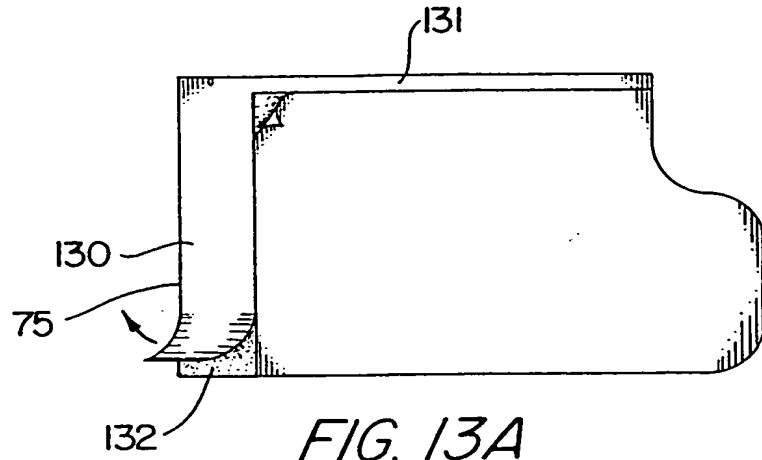


FIG. 12

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# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 99/23697

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G09F3/10

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 G09F B42D G07B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 746 450 A (GLENN PETKOVSEK) 5 May 1998 (1998-05-05) the whole document	1, 13, 15
P, X	WO 99 15340 A (COSTAR) 1 April 1999 (1999-04-01) the whole document	1-18
A	US 5 383 686 A (THE STANDARD REGISTER) 24 January 1995 (1995-01-24) the whole document	1, 13, 15
A	US 5 520 990 A (RALPH W. ROTERMUND) 28 May 1996 (1996-05-28) the whole document	1, 13, 15

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

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Date of the actual completion of the international search

9 February 2000

Date of mailing of the international search report

17/02/2000

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

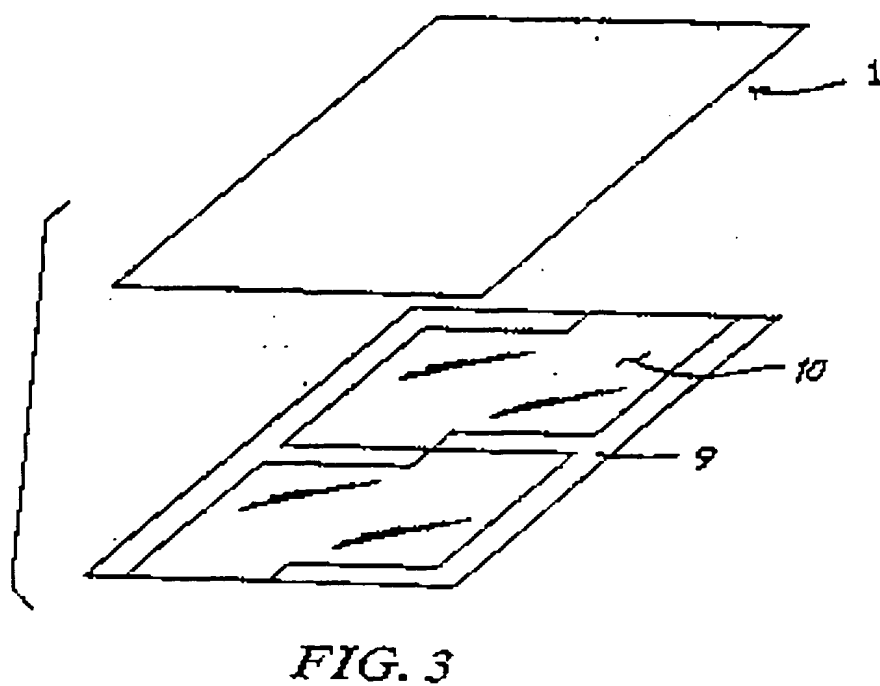
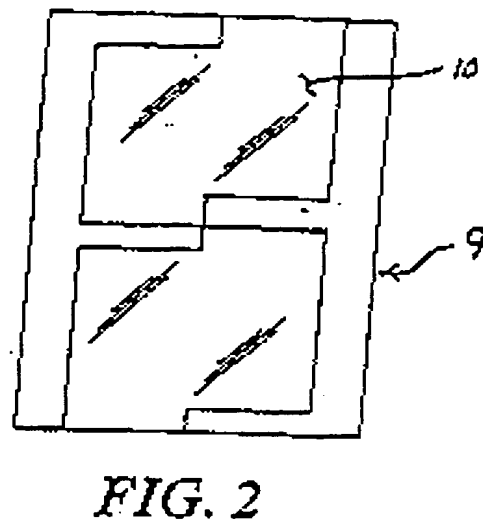
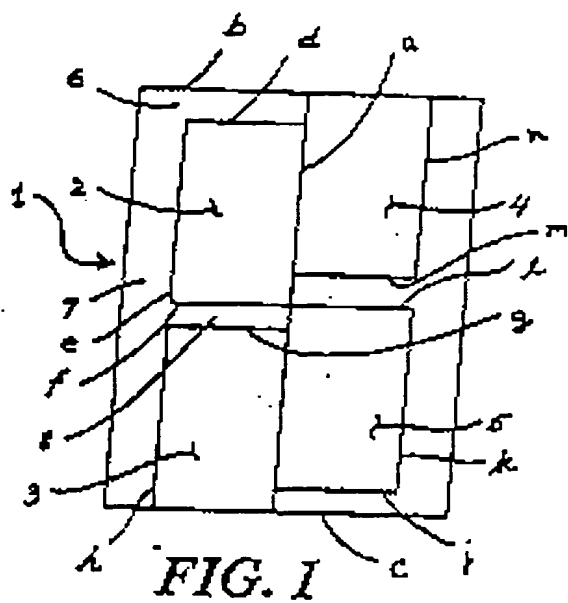
International Application No

PCT/US 99/23697

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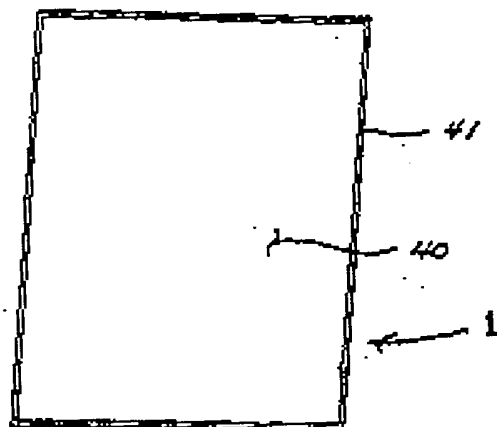


FIG. 4

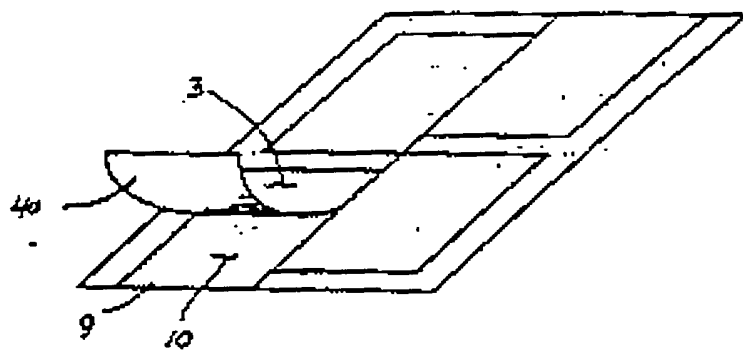
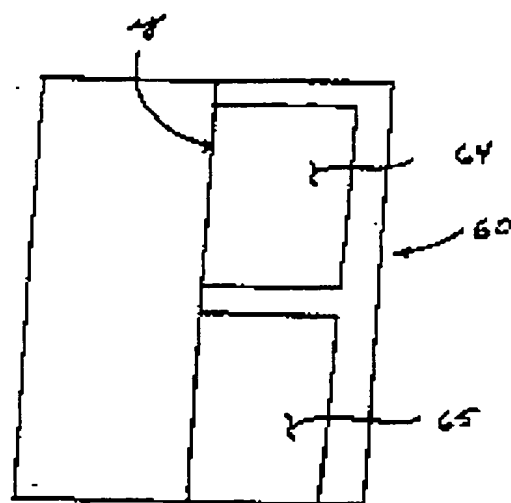
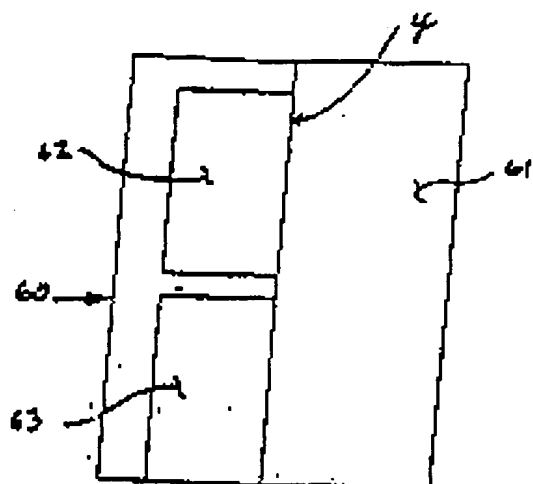


FIG. 5





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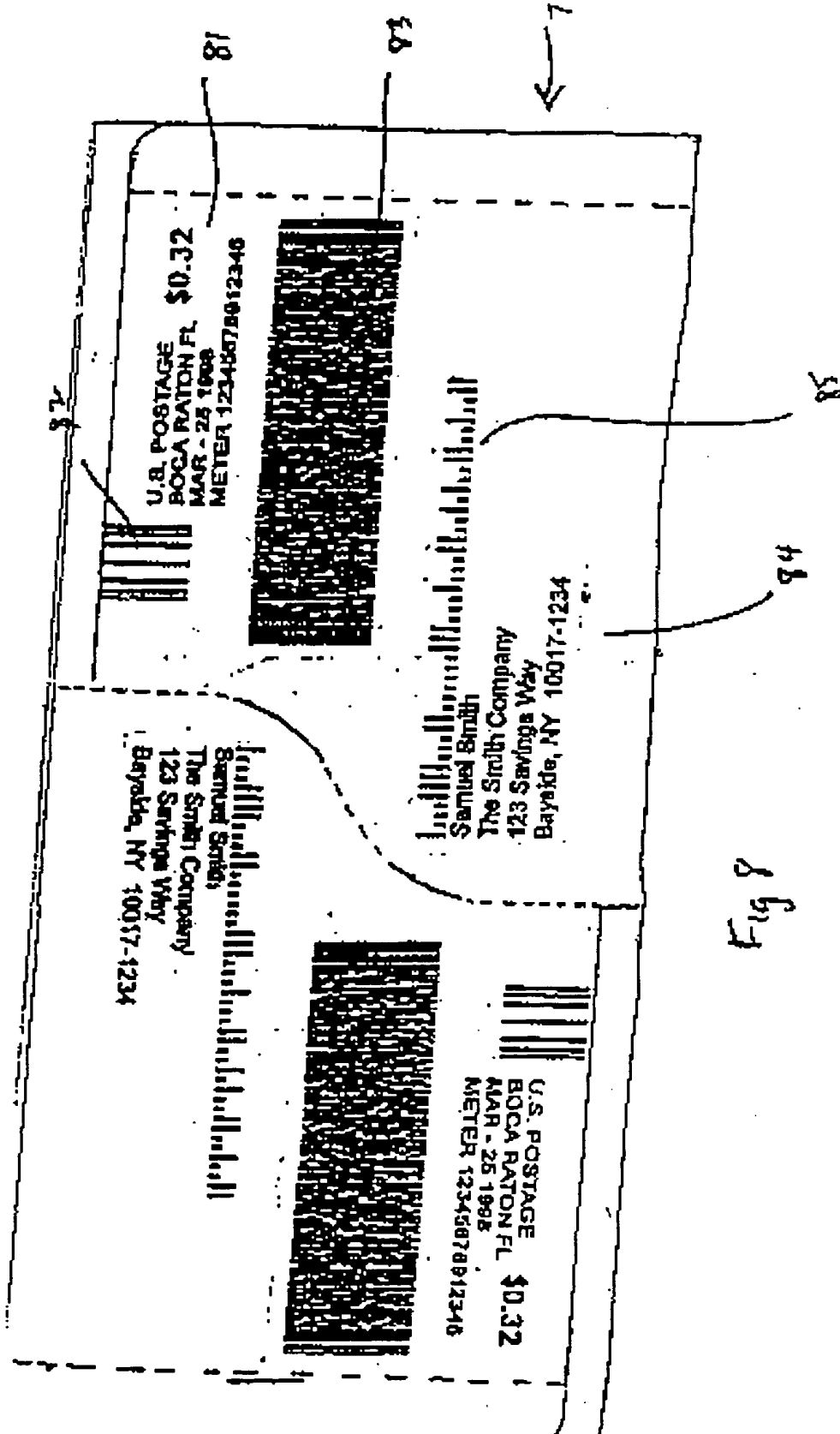


Fig. 8

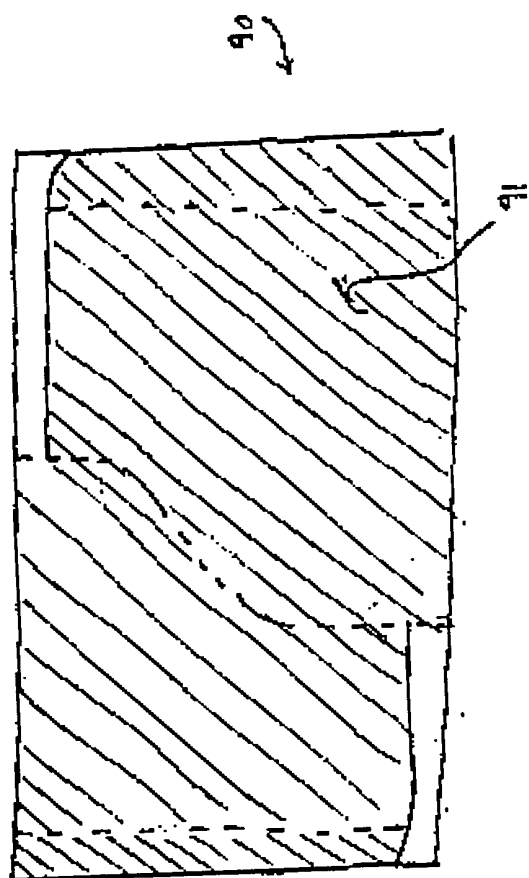
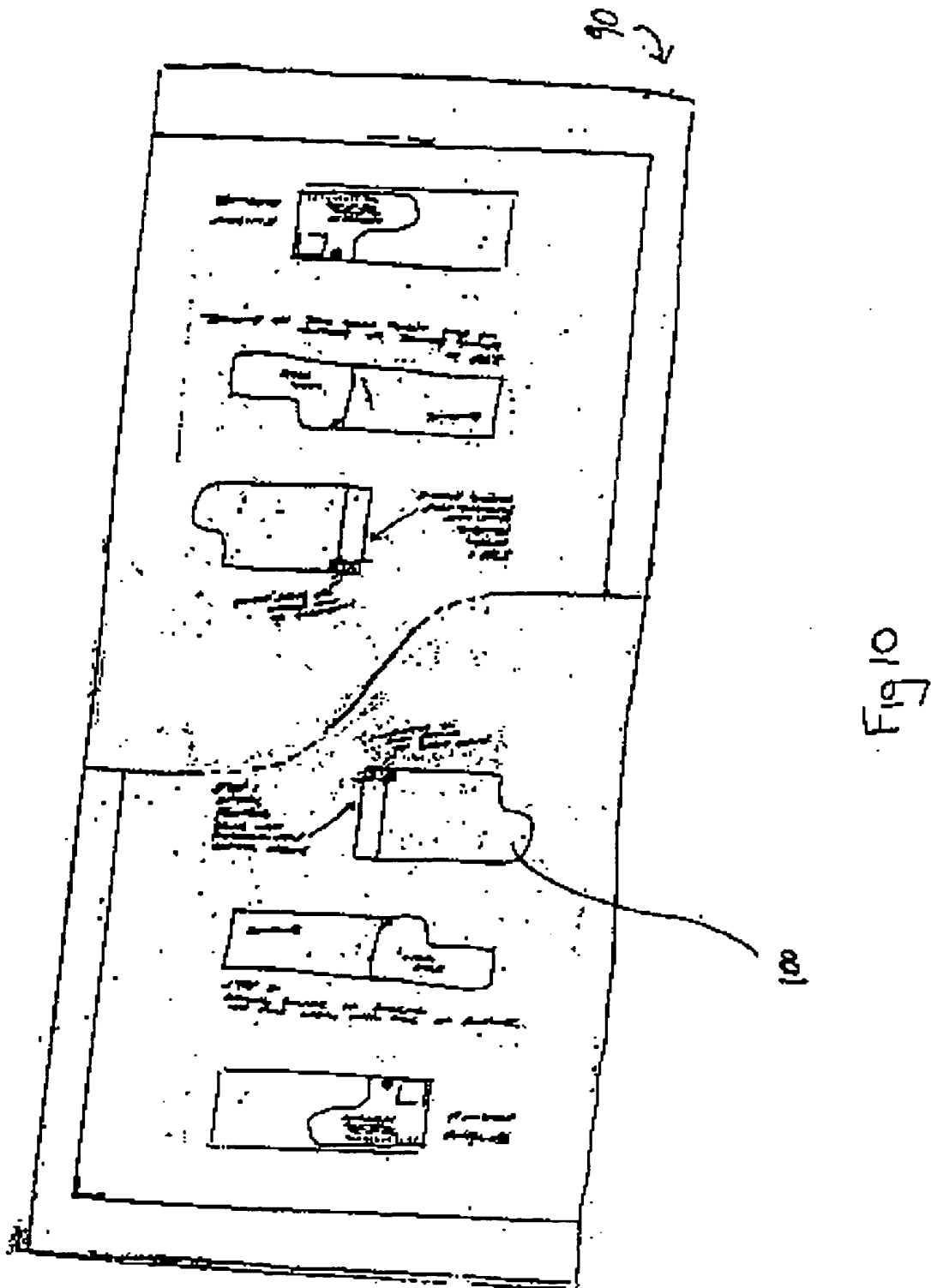
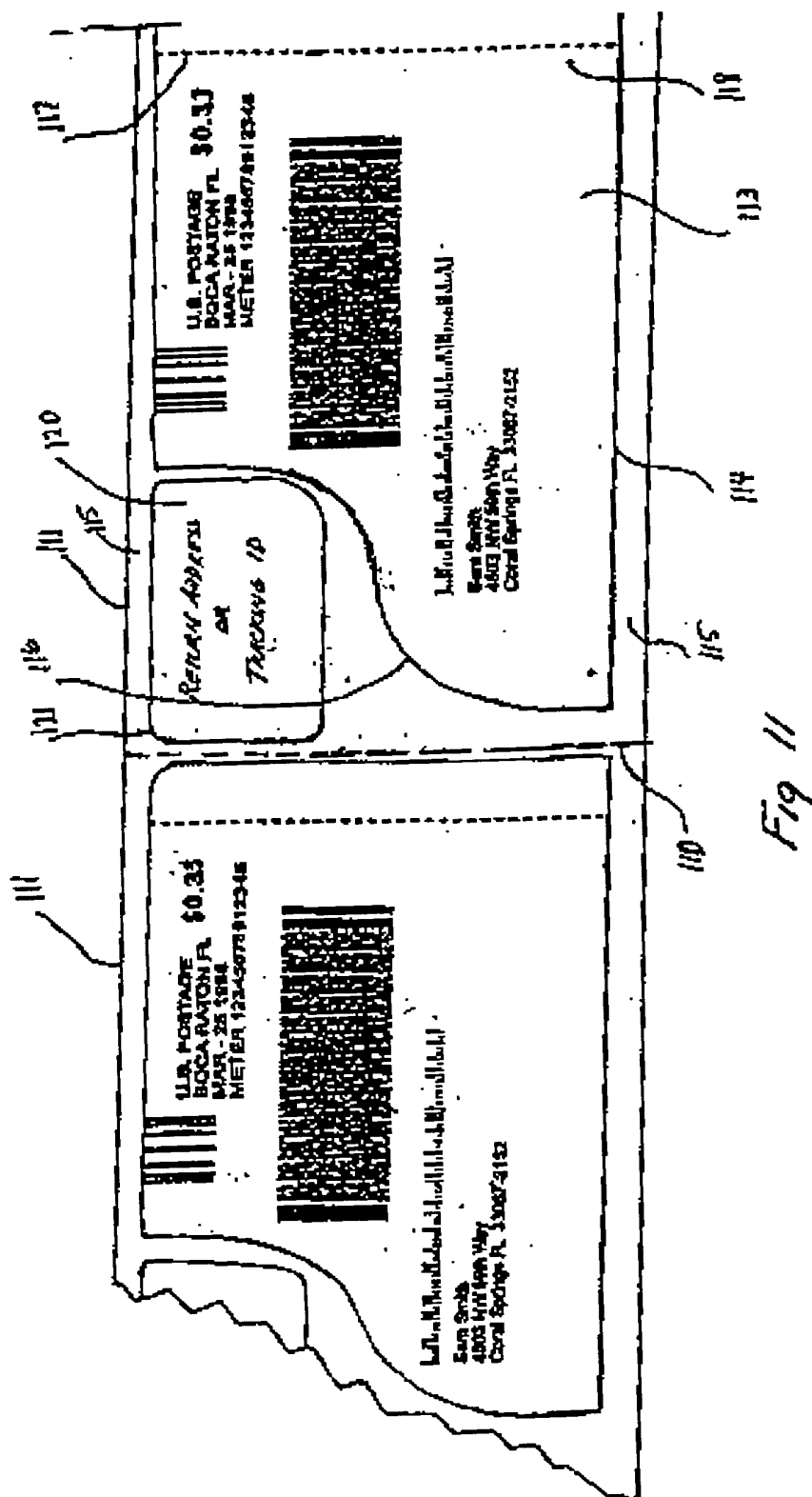


Fig 9







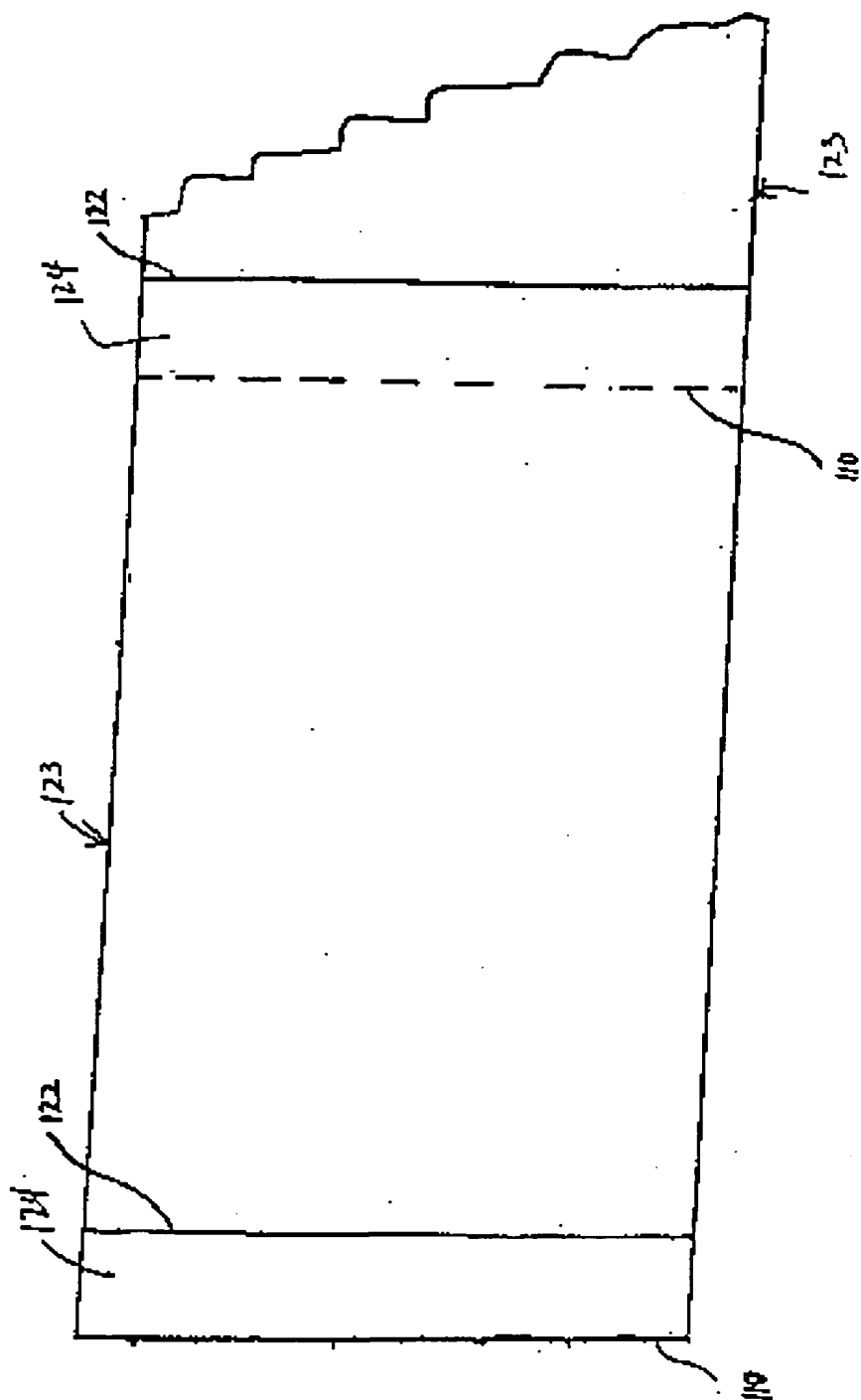


FIG 12

